University of Alberta

Quantum Feminist Mnemotechnics:
The Archival Text, Electronic Narrative and the Limits of Memory

by

Carolyn G. Guertin ©

A thesis submitted to the Faculty of Graduate Studies and Research in partial fulfillment

of the requirements for the degree of Doctor of Philosophy

Department of English

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The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research for acceptance, a thesis entitled "Quantum Feminist Mnemotechnics: The Archival Text, Electronic Narrative and the Limits of Memory" submitted by Carolyn Guertin in partial fulfillment of the requirements for the degree of Doctor of Philosophy.

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Abstract

New technologies—whether used for artistic or scientific ends—require new shapes to speak their attributes. Feminist writers too have long sought a narrative shape that can exist both inside and outside of patriarchal systems. Where like-minded theorists have tried to define a gender-specific dimension for art, *Quantum Feminist Mnemotechnics* demonstrates that feminist artists have already built and are happily inhabiting this new technological room of their own. This dissertation is an exploration of the architectural shapes of mnemonic systems in women's narratives in the new media. Memory is key here, for, what gets stored or remembered has always been the domain of official histories, of the conqueror speaking his dominant cultural paradigm and body. Within quantum mechanics, the science of the body in motion, the intricacies of the interiorities of mnemonic time—no longer an arrow—are being realized in the (traditionally) feminized shape of the body of the matrix. This is the real time realm of cyberspace where the multiple trajectories of the virtual engender a new kind of looking: disorientation as an alternative to linear perspective. Where women have usually been objects to be looked at, hypermedia systems replace the gaze with the empowered look of the embodied browser in motion in archival space. Always in flux, the shape of time's transformation is a Möbius strip unfolding time into the dynamic space of the postmodern text, into the 'unfold.' As quantum interference, the unfold is a gesture that is a sensory interval. In this in-between space, the transformance of the nomadic browser takes place;

she performs the embodied knowledge acquired in her navigation of the world of the text. Quantum space in hypertexts is shaped as an irreducible knot, an entangled equation both in and out of space-time, spanning all dimensions as a node in a mnemonic system. Wanderlust is the engine driving the browser on her quest through the intricately knotted interplay of time and space in these electronic ecosystems. What the browser finds there is rapture—an emergent state of embodied transformation in the experiential realm. What she acquires is not mastery, but agency, and an aesthetic interval of her own.

Preface

One of the paradoxes of quantum mechanics is that to observe a process or event alters it, incorporating the observer into its workings. In the same way, to write (especially on paper) about the dynamic space-time of the subject at play in the rooms of the new media kills the cat—metaphorically at least—in Schrodinger's Box. This is precisely what I will do in these pages. By observing and commenting on the nature of this new literature-that-is-not-one is to irremediably alter it: to trap it, chloroform it and impale it on the head of a pin for further study. Much gets lost in the process but new observations, perspectives and tenors of concern are added to the field as well.

To write about these new modes of speaking is also to perform them. As Peggy Phalen says, "writing is to remark again the performative possibilities for writing itself" (148). The nature of electronic narrative is unrepeatable and requires that we look and look again at what our body has written, is writing and will write in our travels. This is my narrative of the many dimensions of the nature of the text.

Enter. Write yourself into these spaces …

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Some parts of this work have previously appeared in print or on the Web in different incarnations in *BeeHive, Other Voices, Surfaces, Riding the Meridian, artwomen.org, Women Writers Zine*, *zazil* and the *Electronic Book Review*. I have presented ideas from this work in conference paper form at a number of gatherings for a number of organizations: the Consortium for Computers in the Humanities (COCH/COSH) at the 1998, 2000 and 2002 HSSFC Congresses at, respectively, the Universities of Ottawa, Alberta and Toronto; the Sex-and-Gender: Differences, Education & Culture Conference hosted by the Faculty of Education at the University of Alberta in 2001; the Digital Arts and Culture conference, DAC 1999, at the Georgia Institute of Technology; Research Revelations 1998 at the University of Alberta; the Gender and Identity in the New Media panel, hosted by Judy Malloy, at the Invençao Symposium in Sao Paolo, Brazil in 1999; and at the Taller de Narrativa Digital in Sevilla, Spain in 2003. I have also explored these ideas with my students in courses at the University of Alberta, Athabasca University, the Universidad Internacional de Andalucía in Spain and the trAce Online Writing School at the University of Nottingham Trent in England. The University of Alberta has been very supportive throughout my doctoral degree, allowing me to pursue this work with the benefit of, to cite a few, a Dissertation Fellowship, an Andrew Stewart Memorial Graduate Prize for Excellence in Research, the Henry Kreisel Scholarship in Canadian Literature, and a University of Alberta PhD Scholarship. This work was also supported by a SSHRC Doctoral Fellowship. Thanks to all, students, audiences, administrators and educators, for the opportunities, ears, ideas and input.

30 January 2003

Quantum Feminist Mnemotechnics:
The Archival Text, Electronic Narrative and the Limits of Memory

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Quantum Feminist Mnemotechnics:
The Archival Text, Electronic Narrative & the Limits of Memory

1. The Archive: Memory, Writing, Feminisms

i. Mnemotechnics and Quantum Feminisms

> "It is the organization of memory that defines what concepts are."
> Douglas Hofstadter

In a recent campaign to recycle phone books for charity, Telus, the Alberta phone company, ran ads that read "Alphabetical Plot. One-Dimensional Characters. But an Unbelievable Ending." While clearly parodying the expected conjunction of books and narrative, this advertisement also evokes the lack of linear trajectory associated with the new kinds of literatures that are evolving in electronic spaces—works that have more in common with phone books, indexes and encyclopedias than print-based narratives. Obsessed with the need to collect and sort massive quantities of information, the technological world manifests this lust through a quest for memory. Memory is the holy grail of computing, where the unattainable goal to have a fountain of limitless RAM and ROM is eroded by perpetually changing standards that undercut the drive toward archival preservation. With obsolescence being foregrounded, it is no wonder a similar obsession with memory and information is evident in electronic literature. At least partly as a result of this, hypertextual narrative (the non-sequential linking of texts and images in a digital environment) is evolving on a model based not on the codex, but on a form that embodies the spirit of the information age: the archive.

An archive—or its digital equivalent, a database—does not tell a story,[1] but preserves a collection of documents or data non-hierarchically so that each item is of equal importance and can be accessed individually. There is usually a structural ordering to the data contained therein (the epistemologies and implications of these structurings will be explored at length in Chapter 2), but it is only the process of navigating this information that produces links or associational trails for the user. Lev Manovich sees the database and narrative as being "natural enemies" (2001, 225) and having "competing imaginations" (2001, 233) since the database embodies what he deems "anti-narrative logic" (1998, n.p.) The digital archive is a model well-suited to our times and to a cyberfeminist agenda precisely because it is an efficient tool for inclusive dealings with large quantities of disparate information. The archive, as defined by Jacques Derrida in his book *Archive Fever*, is born equally of the compulsion to remember and of fears of forgetting[2]. As such it keeps one foot firmly in the past and another in the future, remembering (or preserving) in order to allow us to safely forget because the archive serves to remember for us. By its very nature, says Derrida, the archive inhabits the space between the public and the personal, and is the product of the tension between the revolutionary and the conservative, between genealogy and history, and between anamnesis (the inability to forget) and amnesia (the inability to remember). According to Derrida, these tensions are the very function of the archive.

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[1] The fact that I will tell you one of the archive's life stories here, that of its history and import as a digital database, is not without its own ironies.

A traditional archive is designed for easy access to information where the structure is organized for the preservation of data in shapes that facilitate long-term memory. In digital narrative, however, this notion of the archive is transformed to become a parody of its traditional self. Digital archives can order information in a number of different forms, but in archival fiction—particularly of the feminist variety—we are deluged with a wealth of information, discourses, narratives, characters, multimedia elements like images, sound and animation, throughout our voyage through mnemonic space. In cyberfeminist texts in particular, these many elements are toyed with and contradictions are often displayed, challenging the reader to construct a single coherent narrative out of a multiplicity of voices. Long-term memory, therefore, becomes increasingly important, and irrelevant, as narrative and computer logic, cultural expectations and notions of linear history are dismantled. Instead, short-term memory—memory that folds in forgetting as a part of itself in a continuous feedback loop (Deleuze and Guattari 16)[3]—is privileged. There are numerous ways to navigate network texts, but there is never a single search engine or apparatus for locating a particular piece of information; the usual function of the digital archive is thereby rebuffed. Instead, there are many short-term mnemonic orderings, like indexes, lexicons, directories, summaries, lists, maps and navigational devices. Only rarely will these lead to a logical conclusion, an expected piece of data or even a sought location. Together these quantum organizational systems do not form means for searching the texts, they are cyberfeminist invitations to nomadism, to become lost—to surf free of our preconceived notions of book-bound narrative and binary logic, to immerse ourselves in the disparate geographies of this topology of archival spaces.

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[2] The desire to forget is a totally different impulse and will be broached at numerous points in this work.

[3] Gilles Deleuze and Félix Guattari, in their seminal work *A Thousand Plateaus,* identify long-term memory as being modeled on an arboreal or tree-like—hierarchical—structure, whereas short-term memory, they say, is its opposite, modeled as it is on a root-like rhizomatic—anti-hierarchical—structure. The rhizome's disorderly root system embraces multidimensionality, multiplicity, simultaneity and forgetfulness in its assemblages (15-16).

Before I go any further, I should say that I am facing something of a crisis of naming—or should I call it a failure of adequate terminology? The new media arts are changing very quickly and names that have been used for concepts and literary and/or artistic forms are also in flux. A prefix like 'cyber' will undoubtedly become outmoded in very short order, but this does not mean that the concept of cyberfeminism will cease to be of relevance. Cyberfeminism was born at a particular moment in time, 1992, simultaneously at two different points on the globe. In Australia, VNS Matrix (Josephine Starrs, Julianne Pierce, Francesca da Rimini and Virginia Barratt) coined the term to label their radical feminist acts and their blatantly viral agenda: to insert women, bodily fluids and political consciousness into electronic spaces [Fig. 1.1 VNS Matrix's cyberfeminist manifesto]. That same year, British cultural theorist Sadie Plant chose that term to describe her recipe for defining the feminizing influence of technology on western society and its inhabitants. In 1997 at the first international cyberfeminist conference in Germany, the Old Boys' Network (OBN), the organization that had arisen to be the central hub of cyberfeminist thinking, refused to define the school of thought, but instead drafted the "100 Anti-Theses of Cyberfeminism" to refuse closure or classification (see Appendix 1 for the complete list). Their rules are multilingual and nonrestrictive. The underlying assumption is that there can be no definition because that only limits what cyberfeminism is. Their edicts range from the whimsical "not a fragrance" or "not caffeine-free" to not a "praxis," "tradition," or "ideology." Cyberfeminism is "not a structure," but is "not without connectivity," and being neither "a lack," "a wound" or "a trauma," it is also "not an empty space." These are 'definitions' that can exist only in opposition, just as cyberculture is inextricably interconnected with print culture even as it seeks to transcend it (Tofts 24). Cyberfeminism is a celebration of multiplicity. Its guiding philosophies are anti-institutional (particularly anti-academic) and playful. It exists in opposition to the "Tupperware aesthetics" (Wilding "Cyberfems 1") of netchicks and grrl sites, which reinscribe female stereotypes, as much as in opposition to the phallocentric establishment. It is a form of embodiment—as opposed to the cyberpunk ideal of disembodiment—that uses historical context as a way of writing itself free of old boundaries, of leaping out of the predestined, restrictive historical framework into a new future. This future is relentlessly material, embodied in the present tense, acknowledging the physical realities of the conjunction of bodies and machines as much as creating environments for the creative state of immersion. This is a proprioceptive habitation of the (virtual) world that re-embodies the reader by incorporating her physical actions into the interactive nature of navigation. This is nomadic voyaging as a way not of destroying boundaries but of acknowledging them and making them permeable.

Alla Mitrofanova, at the first OBN conference, envisioned "cyberfeminist embodiment as a database of intensity" (qtd in Wilding "Cyberfems 3"). As a database, it is a conglomerate of flows and vectors, ideas and emotions. It is an aesthetics. Mitrofanova sets the history of the female body as object in opposition to the cyberfeminist model of the inhabited woman's body as a "browser":

> The browser sees the body as intensity which connects energetically and desiringly with other intensities; which produces organs as a response to specific events and creative necessities of the moment; which is presence and process rather than organized structure; which is hypertextual and has no gender program. So, an embodied intense database is an operative model of creation, of becoming… (qtd in Wilding "Cyberfems 3").

The browser,[4] both as presence and process and a means of movement, is a key concept that I will keep returning to throughout this work, and not in the least because 'browsers' are our interface with the World Wide Web. Despite the virtual nature of the realm and the mode of engagement with a mouse, this is embodied browsing, for, in virtual space, we become "interactors," to use Janet Murray's terminology. We are connected, but our interactivity is limited by our interface with the technology as by our place in the phallocentric economy. Cyberfeminism under Mitrofanova's ontology is flow, it is archival and rhizomatic, and it can exist only in virtual space as a tactic or strategy for browsing. Browsers are constantly in motion, navigate space, look and sample but do not buy into the economy of exchange. Browsers are analogous to and have a predecessor in the *flâneur*. Mark Taylor and Esa Saarinen in *Imagologies* evoke the image of the *flâneur* in electronic spaces, saying that "every reader" is one "who is free to explore in a peripatetic fashion" ("Telewriting" 11). The *flâneur* was a figure conjured by Charles Baudelaire, the 19th century French poet, to describe a new urban type: the wandering, voyeuristic poet who documents architectural physiognomies—including human bodies—and sensations of the city. We too might appropriate the gaze of the melancholic, modernist figure of the *flâneur* for our own ends to resituate the literary voyeur, but not as a nostalgic voice nor as a voice of lament for the loss of humanity in a mechanistic age. Instead, we can use it to invoke a new subjectivity for cyberspatial browsing with a potent gaze that looks, looks back and looks 'elsewhere,' refusing the notions of progress, past and future as defined by print standards. Situated in the present moment of suspension, the *flâneur* is free to look, to become a sensuous crusader in the corridors of virtual space.

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[4] John Slatin in "Reading Hypertext: Order and Coherence in a New Medium" defines three types of readers: the browser, the user and the co-author. "The browser," he says:

> is someone who wanders rather aimlessly (but not carelessly) through an area, picking things up and putting them down as curiosity or momentary interest dictates. In this respect the browser is someone who reads for pleasure, with this important difference: there is no expectation that the browser will go through all of the available material; often the expectation is just the reverse. It is difficult to predict the browser's pathway through the material—and in fact it is less important to predict the pathway the browser will take than it is to provide a backtracking mechanism, what Mark Bernstein calls a Hansel-&-Gretel trail of breadcrumbs to allow the browser to re-trace his or her steps at will (Slatin 159).

Unlike Slatin, my argument is that the cyberfeminist reader is always already a browser in the patriarchal system. The way she engages with digital narrative is the same way in which she engages with the world. I do not believe that retracing one's steps in the new media is possible. Instead, we experience re-visionings. Everything old is new again and, rather than going backwards, we see with new eyes from new, ever-shifting perspectives.

Cyberfeminist embodiment, as a 'database of intensities', is an exploration of the senses and of hybridity (as opposed to simple dualisms or binary oppositions) in the suspended present moment, which engender a new awareness of the body—not a loss of body boundaries as Donna Haraway's "Cyborg Manifesto" advocates[5]. This is hybridized embodiment where the subject exists in a state of intensity only possible when she is in the driver's seat and connected to history, to memory, to community. Coherence happens at the metatextual and quantum level where the body becomes text—subject to change, manipulation, revision, erasure, movement—and the organizing principles are always particular and paradigmatic. Patterns overlap, come together, blend, merge, separate and, out of this weaving, order in our browsing (as opposed to reading, which we do on the page) is born. Each thread joins to a node in a web of such complexity that all mapping can only be metaphorical: the realms of flows and vectors and sensory signals are constantly in motion—gone quantum—in the topological space of memory storage. There are five components of mnemonic topology that I will explore in reference to feminist concerns in these pages: perspective or dimensionality, dis/continuity, trajectories, nodes or density, and the 'ends' or limits of the spatial nature of the form (Benedikt 132).

Cyberfeminism, particularly as practiced by Donna Haraway and Rosi Braidotti, is a means of interrogating boundaries, troubling binaries, and problematizing language like many postmodern forms of literature. Cyberfeminism, like the many schools of feminism itself, might, however, be better known for its resistance to definition and classification. Sheryl Hamilton of Studio XX calls it "an attitude, ... a conglomeration of practices, an orientation, a process of continual exploration, an open space with very few rules, seeking very few rules" (n.p.). Faith Wilding calls it a "strategy" for claiming and taking up space ("Future is Femail" n.p.). Like Indra's Net, the Buddhist concept of interconnectedness where each soul in the universe is represented by a jewel at every connection, it is impossible to envision cyberfeminism as a whole precisely because it is an amorphous hybridity, celebrating multiplicity, complexity, simultaneity and anti-hierarchical impulses. It rejects subordination, or hypotaxis, in favour of juxtaposition, parataxis. As a strategy for browsing, it posits the possibilities of new languages of resistance (or, as Sadie Plant puts it, "cyberfeminism is simply the acknowledgement that the patriarchy is doomed" [qtd in Bosma].) The friction in the archival form is being realized in feminist hypermedia works as a speaking of (archival) countermemory, Michel Foucault's notion of the transformation of history into a different kind of time, and as a browser's "Nomadology," that is "the opposite of a history" (Deleuze 23).

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[5] Haraway does, of course, applaud perverse hybridity.

I would like to put forward here a new approach to supplement cyberfeminism. As technology becomes more and more pervasive in every aspect of our lives, our feminisms grow still larger. They are not limited or contained by cyberspace, but are engaged and informed equally by the real and the virtual. I would therefore argue that cyberfeminisms writ large are in fact quantum feminisms, lived as much in the scientific world as in the literary, personal as much as political. Quantum feminisms are situated knowledges interpolated by experience and embodied presence in the world and, most importantly, quantum feminisms are complex and multiperspectival personal philosophies. We each must continually be in the process of shifting our positions and redefining them. The idea of applying quantum mechanics as a dynamic feminist approach to textual browsing might seem a bit perplexing at first, but, to clarify, the quantum is a way of describing the interaction of molecular, atomic and subatomic bodies in space-time—that is in the first four dimensions, dimensions perceptible to our senses, as Brian Greene and Margaret Wertheim describe them—and mechanics is the study of motion. How the browser's body, position and perspectives or orientations interact is the nature of the hyperlinked universe in a text with molecular (in the Deleuzian sense) properties. I have read extensively in math and the sciences to find a discourse to speak about the new media; I am not, however, a scientist and it is important to note that I do use these principles in metaphorical ways. There may be some slippage in my usage of these terms as a result. I would encourage you to think of this as a *quantum of action*, as the meeting of energy x time or as a space-time of dynamic potential where everything is in flux, particularly our orientation in place.[6] As a quantum feminist, I am deliberately subjective, multiple and diverse, recognizing the body in textual space as an interface and threshold with the world. Our bodies are the "field[s] of intersecting forces where multiple codes are inscribed" (Braidotti 238) and the space where we enact complex engagements and experience diversity. As Gayatri Spivak says, we are "embodied subjects" and our "primary location in the world" is our "situation in reality" (qtd in Braidotti 238). Multiplicity, hybridity (or diversity) and complexity are the tools that we need to enact changes in perspectives in the text as much as in the world and, indeed, this has been a long-standing feminist project.

There are three major components to quantum feminisms as with quantum mechanics. The controlling features are quantisation, interference and entanglement. Quantisation is about the interconnectedness of all things. It is the realization that our beliefs and experiences are not composed of isolated incidents, but instead that they come in patterns of discrete units or 'quanta' that are relationally interconnected as a part of a paradoxical subjective matrix; in it all wholes are assemblages, each linkage is a rupture or breakage, and situatedness is realized through perpetual gestures of dislocation. Quantisation will be explored through the visual perspectives, architectures and philosophies of information systems and the nature of feminist constructs of subjectivity in Chapter 2, demonstrating how they are realized in the archival text. Interference is the site of the inscription of all possible histories, written on the body, and the dynamic unfoldings that the body performs as it writes itself. These minglings of interiorities and exteriorities will form the focus for Chapter 3. Entanglement is where the quantifiable systems of time and space intersect in the past, present and future, producing information that is inaccessible anywhere except in the multidimensional complexity of space-time, the disorientation of spatio-temporal dislocation that is mapped in Chapter 4. When these three elements blend in quantum feminisms, they render the virtual material, the material virtual and produce fractal subjectivities[7] and situated knowledges in digital narrative as much as in life. Situated knowledges are Donna Haraway's call for a feminist "embodied objectivity" (189) that allows for a "particular and specific embodiment" where a physically-grounded perspective promises truer insights, she claims, than a god-like transcendence (190). As a quantum feminist, I will cast nets, spin knotted webs, draw maps and point to the vectors and topologies of three hypermedia novels, Shelley Jackson's *Patchwork Girl, Or A Modern Monster*, M.D. Coverley's *Califia* and Diana Reed Slattery's *Glide: The Maze Game*, that use archival strategies as "points of exit from patriarchal thought" (Braidotti 38) to undermine established forms of speaking and (story)telling through a revisioning of information, subjectivity, embodiment and space-time. The quantum feminist universe may continue to expand in complexity embracing all feminisms, but it is and will be a continuation of a long-standing feminist project to privilege multiplicity and hybridity and to invite a chorus of voices to drown out the solitary speaking subject. The Old Boys' Network defines cyberfeminism as "an update of Feminism" and says that its appeal is in its ability to "build spaces" for "activism, intervention and communication" (OBN FAQ 4). In 2001, the influential Faces listserv launched a new MOO, named xxero, for cyberfeminist discourse to further these same principles of collaboration, materialist values and networking.[8] Suitable to its very adaptability, as much as cyber- and quantum feminisms remain concerned with community and activism, they also interweave and continue the modernist and postmodernist feminist projects to find new oral, narrative, structural and linguistic forms.

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[6] Thanks to Katherine Hayles for this line of argument.

[7] Jean Baudrillard also uses the term "fractal subject," but his is a different construct. The "*fractal subject,* which—instead of transcending into a finality beyond itself—is diffracted into a multitude of identical miniaturized egos, multiplying in an embryonic mode as in a biological culture, and completely saturating its environment through an infinite process of scissiparity" (1988, 40). Baudrillard's scissiparity or self-division (as in cells) is too disconnected for my tastes. I prefer Sherry Turkle's notion of multiple selves as a "distributed system" that "exists in many worlds and plays many roles at the same time" (14). The fractal subject, as I use the term, is a collective of perspectives both simultaneously multiple, self-similar and independent. It is not multiple subjects as such.

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[8] The website for xxero outlines the MOO's goals and objectives:

> xxero is both a collaborative, moo-based environment and a platform for real life meetings and events. Built up by an international network of women associated with the Faces mailing list, the project was conceived in a real life Faces meeting as a tool for examining the many different perspectives on new technologies and how they relate to our lives. The different facets of *xxero* allow for the participants to log in and out of a vital discourse that they are creating as much as criticizing, one that is a project, a context, and a social sphere. The MOO and the real life events are integral parts of the whole—the MOO provides one realm where participants build up content palaces, dream worlds that imagine the best and worst of what technology has to offer. The real life events are lectures, workshops, a table in the cafe, where information is shared and discussed, in private and in public. Each half complements the other, the content and the medium are intricately woven together as they are shared and exchanged in a marketplace of our own (http://www.xxero.net/).

Also, in a medium that is so materially instantiated in technology, everything ultimately is about access. It is no accident that the three authors I will study here are white, privileged and university-educated Americans. I am not blind to issues of race, but this is a form of writing that has been, until now at least, steeped in the Western tradition and white privilege. As such, I analyse it and the authors within those parameters. I look forward to a time in the not too distant future when we might undertake a similar analysis for women of colour or in different cultural contexts.[9] These three authors are also themselves sensitive to the politics of race, access and economics; as a result, they all include differing perspectives. Jackson's *Patchwork Girl* speaks from a position of 'monstrosity,' that of lesbianism; Coverley's *Califia* includes the perspectives of Chumash Indians, Hispanics and Asian-Americans; Slattery's *Glide* incorporates different races into its Dancer types—the Glides are Asian and at least some of the Bods are Black. There is still a large difference in speaking for someone and in them seizing the tools—or fashioning new ones—to make themselves heard. A different study will be necessary to analyze those issues.

To return to the privileged tools at hand: hypertext too is an old idea, born in the desire for associational information structures and orderings that facilitated access to interconnected ideas. Vannevar Bush first proposed a prototype system called the Memex in the 1940s, as he documents in his essay "As We May Think." It was never built. In 1965, Ted Nelson resurrected Bush's idea, named it 'hypertext,' and began adapting Bush's microfilm- and photography-based system for mainframe computers. Nelson called his archival project Xanadu and spent decades devising a system for cataloguing all human knowledge before he released a skeletal program in 1999. Among his goals, paramount was the desire to introduce the role of the social and the effects of human agency into the formation of electronic environments and e-literacies (Kaplan "How Tools Came to Be"). It was perhaps too little too late for, although Nelson's ideas were very influential to early practitioners of the hypertext art, the World Wide Web was conceived by Tim Berners-Lee in 1989 (born in 1992) and it has in many ways made the word—but not the concept of—hypertext redundant. The web makes the hyperlink second nature to millions of virtual surfers, but at the same time it has muddied the concept of hypertextual literature to the point where a link is often confused with a hypertextual system in the same way that a page of random links with little connection to either their targets or each other is erroneously read as intertextuality. In its original conceptions and in its practice in the new forms of literature born on the network, hypertext is a closed system with an individual text-specific (i.e. unique) interface that is in actuality a part of the organizational structuring of the creative work. What in the 1980s and early to mid-1990s was thought of as hypertext in electronic culture now goes by many names: digital arts, digital culture, new media arts, rhizomatic texts, net.wurks, cybertexts, interactive fiction, hyperlinked fiction, clickerature, technotexts, collaborative fiction, electronic narrative (not to be confused with ebooks, which are print novels translated into electronic form), post-postmodern fiction, anti-narrative, and on and on. I would argue that what we once thought of as hypertext fiction is now only a small subsection of the larger umbrella of digital arts. Not all digital art embodies the narrative structure and associational logic that is evinced by the networked narrative text.

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[9] As a Canadian, I too am an outsider and, even though mobility impaired, I can only speak from a position of privilege within the academy. As a Canadian however, I follow in the oversized footsteps of some important cultural critics, including Harold Innis and Marshall McLuhan, in occupying a unique position from which to critique the behemoth of American culture. Some aspects of this outsider status might be invisible to American readers. This is an intensely Canadian work that draws upon our multilingual heritage and historical perspectives in many ways. It also enfolds many notable Canadian writers, artists and theorists within its wings. Brion Gysin, Daphne Marlatt, Gail Scott and Nicole Brossard are just a few members of this chorus.

Hyperlinked fiction, unlike the larger network of the web, draws its narrative inspiration from the print-based novel; its structure, however, is drawn from that digital archival model, the database. This hybrid form is a new genre in a new medium for fiction (since genre is a way of categorizing various structural models),[10] but hypertext is even more distinctly different from its progenitor than its cousin television is from its parent, film. And so, the crisis of naming continues, just as the complexity of the texts entwines—or intertwingles, as Ted Nelson would say—ever more elaborately. Much web-based fiction incorporates hypertextual ideas, but does not challenge the boundaries of the genre; instead they merely translate old ideas onto electronic spaces. So I shall, for the purposes of this study, foreground the hyperlink because it makes most explicit the machinery behind the form, the enactment of leaping from one spatio-temporal coordinate to another. For a variety of reasons, I have also chosen three electronic texts to work with here—Jackson's *Patchwork Girl*, Coverley's *Califia* and Slattery's *Glide*—that are not web-native texts, but instead are commercial or institutional publications. Their very complexity (until such time as we have sufficient bandwidth and cheap enough rates for connection) renders them too large for the kind of sustained online access necessary to read them. (I should also note that some parts of *Glide* do exist on the web as Director-based multimedia documents and other elements are available for download. However, one component of the text is a print novel,[11] while the 'game,' the alphabet and the lexicon exist only on the web or on CD-ROM.)

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[10] Mikhail Bakhtin's chronotope, the notion of how the intersection of space and time in a work determines its genre, is a concept of particular relevance to the new media.

Like cyberfeminism and hypertext, memory poses similar problems of naming and identifying, for memory and our notions of memory are cultural constructs. As such, they are subject to rapid and radical change. Frances Yates in her influential *Art of Memory* is the chief historian of the changing nature of mnemonic systems from the Classical *ars memoria* to that model's eventual dwindling in the Renaissance. Mary Carruthers in *The Book of Memory* has further explored the mnemonic in medieval thinking, while in *The Memory of the Modern* Matt K. Matsuda has extended Yates's project by looking at the newer constructs of memory under modernism. David Farrell Krell has mapped projects that investigate the archive, grammatology and writing as a machinery of memory in *Memory, Reminiscence and Writing: On the Verge*, particularly in reference to Henri Bergson, Maurice Merleau-Ponty and Jacques Derrida. In addition, Jacques Derrida's *Of Grammatology* is a masterwork in the history of writing and writing technologies that has influenced my thinking. I am indebted to all of these works for mapping the terrain of different cognitive, historical and theoretical models of remembering and for situating them within the philosophical contexts they evolved. I do not seek to duplicate what they have done and my goal is different. My concern is with quantisation and mnemonic overload, information overload, with chaos, and with what N. Katherine Hayles calls a state of "maximum information," in a positive revaluing of the condition of our time. I am interested in how these mental and computational states have contributed to a twin obsession with amnesia, the inability to remember, and with anamnesis, the inability to forget, in the age of network culture, as well as with how they have been realized in the speed of the medium in the spatio-temporal dislocating memory rooms of the new literatures.

Memory has become rhizomatic (this concept will be discussed at length in Chapter 2) and roots itself no longer in the word but in the disorientation of new visual and temporal perspectives for the Information Age, in the gaps between word and image, and in the disjuncture between visual language and information literacy. Knowledge is no longer a quest in and of itself, but has been replaced by data processing and the navigation of hyperreal information architectures as knowledge skills. Western culture has been crystallized pixel by pixel into a multifaceted information system. We are obsessed with categorizing, cataloguing, collecting, quantifying, sifting, sorting, and ordering data as an end product. This mad scramble to document the present moment is an encyclopedic urge to capture what Matsuda calls 'the history of the present.' History, having been dismantled one brick at a time, documents the 'philosophy of today,' he says, rather than providing a hoped for chronicle of the past. Now inhabiting a cinematic and web-woven world—what Pierre Lévy dubs the "cosmopedia", the meeting of the cosmos and the cinematic in an encyclopedic form (Davis 330)—we dizzily leap from moment to moment, grasping at the cosmological simultaneity of occupying past, present and future in the same instant both in our lives and in our reading. As technological change accelerates and information systems accumulate data faster than we can ever read, we seek to find ways to decelerate time, make it microscopic, particular, bite-sized, or, as in the technologically innovative film *The Matrix*, to capture the elongation of the present moment and slow it down enough for us to witness its mapping in real time.

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[11] Another new media author, Stephanie Strickland, has a text that is also a combination of printed text and online work published in the fall of 2002 called *V.*

The influence of hypertextual thinking is pervasive. It is as readily apparent in the multi-windowed shots of filmmaker Peter Greenaway, as it is in the spatialized moments of the tv series *24*, as it is in the frenetic montage of music videos. But what does this all have to do with fiction? Everything. For hyperlinked fiction does what these elements in film, television, video or the novel are only reaching for. The new forms of narrative in electronic spaces foreground the interactive elements of print-based novels that have always made fiction an immersive environment. Opponents of the new media forms have tried to rationalize the traditional form, have tried to force the realist novel into an analog mould, even though it never really fit that structure in the first place. The bound book is the ultimate random access machine (Masten et al 4) inviting us to dip in, taste, sample, and skip around in our reading. Large enough to accommodate marginalia, chapters, subsections, indexes, and associational tables of contents, the book began to be perceived as a linear form only with the advent of narrative fiction in the18th century (Masten et al 2). In the realm of postmodern fiction in the latter half of the 20th century, narrative becomes increasingly digitized and spatialized, refashioning itself against the self-proclaimed (if never completely realized) analog quest for linear trajectory that came with the realist novel. Since Judy Malloy posted *Uncle Roger,* the first hypertext novel and collaborative text, on an online conference in 1986, the new forms of digital narrative have come to make explicit and interactive the gaps, fissures, voices, and spatial and temporal ruptures that have always existed in print fiction. But, for that matter, ever since Mnemosyne, the mother of the muses, gave the wax tablet to mortals, memory, writing and technology have been interconnected.

As a mnemonic technology, hypertext was first envisioned in its prehistory by Bush and Nelson as an associational, archival storage system suitable for classifying and sorting vast quantities of information. But where library databases, technical manuals and other knowledge-based hypertexts (like airplane repair manuals) still fulfill this function, literary hypertext overturns this proposed usage, incorporating information overload, a form of forgetfulness, as a part of its structure. Short-term memory and memory loss are central issues in computing, as I will seek to demonstrate in these pages. What gets stored, or remembered, within the technological archive is also of particular interest to feminist thinkers given how women have been left out of official histories of the past. Literary hypertext as a mnemonic form lends itself particularly well to feminist thinking and is a medium where women have risen to the fore as skilled practitioners. Evolving out of the evocative echoes of these two countercultural modes of speaking, hypertext and quantum feminist thought, this study will focus on the mnemotechnics—the function of memory—in Jackson, Coverley and Slattery's feminist electronic novels.

Quantum feminist mnemotechnics incorporate the archival nature of the hypertext form into a text's structure and interface, privileging self-reflexive narrative and the spatio-temporal elements of postmodernism, particularly as defined by N. Katherine Hayles and Ursula K. Heise. Hayles argues that postmodern fiction produces split temporalities. She says that the notion of simultaneous and different possible times is central to postmodern novels' narrative structures (*Chaos* 279-80)—and that hypertext fiction takes this a step further, proposing a multiverse[12] (that I will discuss elsewhere in the contexts of quantum interference and entanglement). A multiverse erases the paradoxical nature of time by making all times simultaneously possible in the process of the reading experience (Hayles, "Print is Flat").[13] Ursula K. Heise argues that postmodern narrative projects shift the temporal mode of the future into the present and past of a text, thereby making "[c]ontingency ... narratable through its displacement" of "the time experience of the future ... into the reading experience" (67). What I call mnemotechnics in this context are a troubling of history—a form of Michel Foucault's 'countermemory'—positing a self-reflexive interaction with both visual and textual languages and with the temporal elements of narrative in hypertext's multidimensional spaces. Situated in the sensory space of the present moment, quantum feminist mnemotechnics is a strategy that undertakes the political project of revisioning the future through spatial leaps or nonlinear links out of the predetermination of patriarchal history. My concerns are literary: I will explore the potential of digital narrative as a forum for feminist discourse, and investigate whether a quantum feminist reading of these novels reveals politicized alternatives to traditional, linear constructs of memory and forgetting. Leery of the nostalgia or utopian impulses that have led some feminist theorists—Sadie Plant in particular—to define virtual spaces as inherently female, I will map how the spatial exploration of the nature of memory, and specifically quantum feminist mnemotechnics, lend a materiality to the digital fictions of Shelley Jackson, M.D. Coverley and Diana Reed Slattery that is sometimes absent from cyberfeminist theorizing.

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[12] The multiverse is a concept in theoretical physics, borrowed from William James's pluralistic universe, that represents the conglomerate of all possible alternate universes. "It is essentially an infinite number or infinite universes, making up an infinite number of infinities" (Superguy FAQs).

[13] The concept of the multiverse has the same effect on visual perspective, which will be discussed in Chapter 2. It could be argued that a multiverse erases the paradoxical nature of perspective (rendering it temporal) by making all perspectives simultaneously possible in the process of the reading experience.

ii. The Arts of Memory: What Came Before

Why a mnemotechnics? Why a focus on memory (as opposed to, say, history or visual culture) in this high tech age, let alone the technologies of memory at all? Memory is messy, built of associations, fragments, snapshots and whiffs of the past, derived from the senses and the body rather than from logic or knowledge. Notoriously unreliable, memory has been denounced by many down the centuries from Plato—who introduced it in *Theaetetus* "to refute the notion that knowledge is perception" (Krell 25)—to Réné Descartes, with his purely mechanistic view of memory, to the contemporary witch hunters who seek to prove the existence of a 'false memory syndrome' in survivors' charges of violence against their abusers.

It might seem curious to talk of memory as having a technology, let alone in reference to the contemporary science of computing. The reality is that the computer is the latest incarnation of thousands of years' evolution of mnemonic systems. Memory is aligned with genealogies, storytelling and oral culture, (all elements predating cave painting and writing), the earliest of mnemonic technologies. Tales of family lineages and even the tribal bard himself were around long before the notion of history in the Western world was born with Herodotus (5th century B.C.E.). (Although Herodotus had much to say of interest on the topic, being both the Father of History in the early days of literacy and the 'Father of Lies'—as Aristotle dubbed him—in the sunset days of orality in the Western world.) But, to return to the matter and question at hand, what is a mnemotechnics? It is quite simply an apparatus or device designed to enhance the normal or 'natural' human capacity for memory. A mnemotechnics is also a form of literacy, "a set of technologies and social practices enabling the mental, the oral and the gestural to be detached from the human mind and/or body, to be retrieved and to be constructed" (Kaplan "Literacies"). Memory being engrammatological, a form of writing that is impressed on us, is inherently technological, and it is also a cultural literacy.

Pre-literate cultures have mnemonic technologies that are as sophisticated as our libraries, archives, databases, dictionaries, and encyclopedias. Their technologies trained their mind; ours free our mind for other things. The literacy of orality is something quite unimaginable to deprived literate folks with flabby, untrained memories.[14] The mnemotechnics of oral cultures are fabulously elaborate, making the 'practitioners' of the art (i.e. the storytellers) capable of feats of memory that are inconceivable to us. In Australia, the aborigines have 'sung' every rock, tree, watering hole, and pathway of note. It is literally possible to navigate the whole of the continent by following these songlines. North American native tribes encoded the whole heaven of constellations in string games—cat's cradle is a familiar one—that permitted celestial navigation. Music, rhyme and meter preserved old folk ballads and the homerian ('Homer' most likely being a composite of many storytellers) epics for generations, in some cases centuries, before they were ever written down in what we call their 'final' form. They were remembered by formulae with a collection of stock phrases and each telling might follow a different order—in *The Odyssey*, for example, each tale or 'book' is a free-standing unit and did not arrive in a particular sequence—but the meter, rhythm and sense would remain the same with every telling. All folk ballads were sung. This restricted the telling of a tale so that its form and intent was not lost, but individual words were not considered important. It was Judeo-Christian culture with its bizarre (by standards of the time) belief in 'the word' that changed that.

In the early literate cultures of Europe, the oral art of memory was refined and adapted to written literacy. In the era predating the printing press, a literate person might only ever gain access to a particular manuscript once in a lifetime. With the advent of circulated manuscripts, mnemotechnics were not only perfected so that individuals could retain key features of the art of oral memory, but also were further fine-tuned so that verbatim recitals could be made. Master practitioners could recite anything they had read not only in verbatim order, but backwards or in any sequence as well. Just as the printing press killed memory, so the new media are reinventing it anew—or so I will argue in the following pages. Oral tales were vested in myth: there was no one truth. They excelled in multiple truths. There was no author, only collaborative tellings. The stories belonged to the community. Any teller who improved on a story increased the collective wealth of the group, for their future depended on them knowing the lessons of the past—which might include genealogy, navigation, food sources, hunting techniques, and all manner of models of behaviour. The media theorist Walter J. Ong believes that the printed book, through its erasure of temporality in language, encourages notions of closure and of authoritative or 'final' forms of literature that are wholly antithetical to earlier oral concepts of language. The electronic media, he argues, have brought about a second age of orality. Although similar to the first age, this new orality is more deliberate and self-consciously oral—a meta-orality—that re-introduces connections. It embodies the awareness of listening to ourselves speak and the realization that we have not always done so. Listening is reciprocal and inclusive, welcoming in other voices and requiring a response.

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[14] Sigmund Freud drew attention to the very real problems connected with archiving "oral narrative and public property," "mnesic traces," and "archaic and transgenerational heritage" (Derrida *Archive* 34) that Plato and Socrates referred to.

It is not in the oral tradition itself, however, that the story of mnemotechnics begins, but with the often-recounted tale of the collapse of a hall in the 5th century BC where a contemporary of Herodotus's, Simonides of Chios (556-468 B.C.E.), escaped harm through (he claimed) divine intervention. Unlike the man from Porlock who called Samuel Taylor Coleridge forever away from his laudanum-induced dream of Xanadu, Simonides was called out of the hall on an alleged summons from Castor and Pollux, and, as a result, was the only survivor of the tragedy. The event made him a revered man, not on account of his survival, but because of his extraordinary memory that enabled him to recreate the seating plan of those at dinner, and thereby allowed the grieving families of the dead to identify the corpses of their mangled loved ones. Simonides founded the *ars memoria*, the Art of Memory, in the wake of this incident. Although only Latin references to his writings have survived (and he was apparently a bard of note), it is known that his mnemonic system was based on sight and the powers of visualization. Aristotle also revered the powers of visual memory and others like Quintillian and the anonymous author of *Ad Herennium* refined or reiterated the principles.

The rules of the Art were quite simple: one was required to memorize the features of a building and to place images or emblems as memory cues on different architectural features. The places or *loci* were well lit and spaced a good distance apart and the images of a remarkable quality, startling, hideous or beautiful, so that they were readily recollected. The images were metaphors, frequently composite, and would encode the many details of, a favourite example, a court case or other collection of facts to be recollected. The *ars* were originally used for oratory and memorization was encoded in the body kinetically by walking through the chosen space—for memory is, according to Aristotle and Aquinas among others, corporeal (Yates 83).

The names of some of the practitioners, like Cicero (106-43 B.C.E.) and Thomas Aquinas (1225-74), will be familiar, while others like Giulio Camillo (1480-1544), Giordano Bruno (1548-1600) and Robert Fludd (1574-1637), will be less so, but the Art occupies a long tradition and place of importance in the history of memory, and subsequently in the greatest of all archival systems, the computer. While the rudimentary principles of the Art remained fundamentally the same from the time of Simonides to the time of Gottfried Leibniz (1646-1716), its manifestations, philosophy and uses fundamentally changed. Frances Yates has documented this at length in her book *The Art* *of Memory* and I would direct you to her masterwork for the finer details, but I will summarize some of her findings for our purposes here. As mentioned earlier, in the classical period, the Art is used primarily for rhetorical purposes, but in the medieval period it is Aristotle's body-based method that was followed and, in the Renaissance, Plato's rational art of the mind (Yates 53).

In medieval times, the Art passed into cloistered culture as a component of scholasticism, useful for memorizing the vices and virtues, passages from the Bible, the psalms, and similar material. One of the more influential medieval practitioners was a monk by the name of Raymond Lull, whose thinking would prove to be very important to the 17th century mathematician Gottfried Leibniz. Lull introduced "a geometric logic" (Yates 179) into his system and devised lettering and numbering systems to replace the use of images (Yates 177). Images and image systems became suspect as Protestantism spread in the Renaissance and the Puritans sought to wipe out Popish idolatry (Yates 231). In the Renaissance, memory came to be important for commerce (Yates 119) and gained a widespread secular following on that account with simple numerical or lettered methods, rather than the less popular image systems. The Art was, perhaps more importantly, also adopted by alchemists and other followers of the occult arts, hermetic philosophies and the Jewish mystical system of Cabalism who revered the concept of images and (this was the Renaissance) divine proportions. It was among these uses that Giordano Bruno and others embarked on a quest for the "universal memory machine" (Yates 206), and the search for the divine plan of the universe became a search for the divine in man, embodying as he (and not until much later, she) does God's perfection. This was a heretical path—Bruno was burned at the stake, while Fludd took refuge under the wing of King James—that sought to harness the omnipotent magic of the heavenly bodies in highly systematized memory machines.

With the exception of Bruno's "magico-mechanical memory" which was driven by revolving gears (Davis 202), these cosmological machines had little of the mechanical about them apart from clockworks and the concept of turning concentric circles. They consisted of attempts to organize the secret teachings of Hermes Trismegistus of Egypt, the Jewish Cabala and other divine knowledges on conjuring wheels that would capture the divine powers of the universe, and subsequently endow the speaker of 'magical' words with mystical powers. These same powers, which alchemists believed could turn lead into gold, a century or so later would come to be seen to be the spark of life in the earth itself—sowing the seeds for Mary Shelley's illicit monster in the lingering aftertaste of the smoking corpses of Luigi Galvani's nephew's experiments with beheaded criminals. Later still, Victorian mediums, under the teachings of a different spiritualist philosophy, would try to tap into similar electric powers allegedly manifested by telluric lines in the earth's crust. There is, in fact, an eerie similarity between the graphic conceptions of many diverse cosmological systems over several millennia. Stonehenge, Persian astronomical wheels, Bruno's conjuring wheels, Aztec calendars, rock art based on Australian Aboriginal songlines, the mandala, native energy circles, and contemporary global information networks all bear a startling resemblance to each other. Is this the way we map order in the universe or an image of our interface with the world? Is this a projection of the cognitive functioning we intuitively visualize of our own mental mnemonic and communications networks?

Yates argues that these alchemically-driven endeavours to map the magical powers of the universe in the Renaissance ultimately led to the concept that the universe was a mathematically driven piece of machinery: a giant clockworks (Yates 221). And this concept would ultimately be turned back on mortal man, to study first the mechanics of the human body and then the brain as an information processor, a prototypical computer. Before this comes to pass, however, man is placed at the centre of the universe, as a spectator to the great cosmic powers in the Memory Theatre of Giulio Camillo. Camillo constructed a 'theatre,' a small wooden structure large enough for a man to stand on the stage and look up at a tiered mnemonic system that attempted to encode all human knowledge. What Camillo built was in essence an interactive theatre where the spectator, as player or interactor immerses himself in the drama of the'events,' that is, the knowledge to be gained from the information painted therein. I will come back to this idea in Chapter 3, for it will become of central importance in the spaces of interactive fiction in immersive, electronic environments.

As literacy spreads during the Renaissance and Restoration and printing makes texts accessible, the need for an encyclopedia of knowledge at the tip of one's brain begins to fade and mnemonic systems begin to be devised in print. Encyclopedias, dictionaries and grammar texts are born, and the word begins to supersede the image as the preferred system of mnemonic method. "Spatial visualization starts to take place on the page" (Yates 230) hierarchically and typographically rather than in the mind, for, the *ars memoria* is only the beginnings of a search for a scientific method that could not be born until the Age of Reason (Yates 297). Both Bruno and Camillo desired to devise a method for categorizing all of human knowledge, but it was not until the seventeenth century with its preoccupation with a universal language that the answer presented itself—in the truly international language of mathematics (Yates 364). Philosopher and mathematician Gottfried Leibniz's (1646-1716) goal was not so different from that of Bruno and Camillo: along with his new language, a notational system for infinitesimal calculus, was "an encyclopedia which would bring together all of the arts and sciences known to man" (Yates 368) and, in the Hermetic tradition, Leibniz referred to his calculus as "a true Cabala" and "a universal key" (Yates 371). More importantly, Leibniz freed logic, and specifically symbolic logic, from the restraints of natural language, and along with the prototypes he designed of computers and the calculators he built introduced a notational, numerical system that could talk across systems and cultures. It is a system that we now know better as binary code (Heim 36), the language of computers.

As communications technology, exploration and cartography made the world smaller and magnifying devices made both tiny particles and distant worlds visible, the quest for divine order in the universe transformed itself into a study of mechanics. While in the 19th century the still-dangerous teachings of the medieval alchemists Cornelius Agrippa and Albertus Magnus (who taught the Art of Memory to Thomas Aquinas) could be envisioned by Mary Shelley as the spark of Victor Frankenstein's transgressive construction of a monstrous organic machine, Charles Darwin even more controversially saw the biological memory of a species recorded in the body—the database of evolution. Motorization accelerated the drive to externalize memory as Ada Lovelace, the daughter of bad boy poet George Gordon, Lord Byron, adapted the mnemonic Jacquard cards of weaving technology (which 'remembered' the pattern to be woven) to fashion the first feasible prototype for a computer. Memory was externalized more and more as the printing press too was motorized, which had a tremendous impact on daily newspapers, in an era when mass literacy spread and the mails became more sophisticated (Matsuda 88). Nineteenth century scientists embarked on a quest to locate the seat of memory, and ultimately decided that it was something housed in the brain. Try as they might, however, they could not find a single centre for memory and it was not until Paul Broca conceived of memory as a multiplicity, as a series of interlaced connections, that progress began to be made in the field (Matsuda 83). When the French Doctor Pitres began to think of memory loss as the result of a system with broken connections, he took a giant leap forward in the study of cognitive processes:

> Pitres' conclusion was a stunning and sweeping evocation of memory as a cartographical communications network, a map and global web of signals and circulating sensations lodged nowhere in particular. From this point of view he proposed that memory and language disorders would well merit the name of "transcortical aphasia ... the rupture of communications between the sensorial cortex centers and the equally intercortical neurons of the psyche" (Matsuda 85)

Conceiving of memory as a network, like a railway system, once again made mankind a part of a cosmological plan, a cog in a mechanized system, and the age of mass-produced memory was born through the acceleration of information, people and machines.

In the 1940s, Norbert Wiener took this even further, aligning the 'science' of communication and the automated control systems of machines with living creatures. He called this circulatory system of information-processing cybernetics. He saw the ineffable, unquantifiable self as something fluid, a kind of "pattern of information" (Davis 90):

> The physical identity of an individual does not consist in the matter of which it is made. . . . The biological individuality in an organism seems to lie in a certain continuity of process, and in the memory by the organism of its past development. This appears to hold also of its mental development. In terms of the computing machine, the individuality of a mind lies in the retention of its earlier tapings and memories (qtd in Davis 90).

While Wiener's information system can count among its descendants William Gibson's concept of cyberspace in the 1980s, it first fathered an understanding of the newly discovered machine code of the body, DNA, in the 1950s. The helix-shaped archival ordering of the body's code—its memory and startup disk—was understood and classified in Wiener's wake as an information carrying system. The "code of life" was also perceived to be as simple and as complex as that newer mnemonic system with its potentially infinite number of combinations, the alphabet (Davis 87). And still two of the greatest cosmological, categorical undertakings in the history of memory were born in the 1990s as the Human Genome Project set out to map the entirety of the knotted universe of human DNA, and the Visible Human Project sought to visualize and catalogue the human body in both genders micron by micron.

Another new technology had a startling effect on this process of the externalization of memory: first photography and then the cinema accelerated time into a sequence of identifiable moments and started to shift the emphasis back away from the word as a mnemonic device towards the image. The philosopher Henri Bergson was influenced by these moving pictures to define an active image as the concept of memory, a thing in transition between its material existence and its idea or meaning (Matsuda 95). For Bergson, in contrast to us, "Memory was ... not a faculty of storage and recall, but a series of moments seized and inserted into a continuous 'present action'" (Matsuda 95). We can see stream-of-consciousness writers like Virginia Woolf, who was influenced so deeply by Bergson's thinking, still frantically scribbling, trying to capture the ever-present moment as it whizzes by.

Further evidence of this trend is apparent in the ongoing externalization of mnemonic systems: we inhabit a globe traversed by radio waves, surveillance systems, satellites, and, most recently, the World Wide Web.[15] The Web is the most sophisticated cartographical externalization of our mnemonic processes that we have yet seen. And it too is accelerating. The time between seconds, what Rob Shields calls the "aesthetics of delay" in web surfing (157), has the illusion of depth or tangibility as bandwidth increases. The age old quest for knowledge and methods to retain it has been transformed into an obsession with access to information where retention is no longer an issue when the world (or at least the World Wide Web) is always just a few keystrokes away. Learning has shifted so that adaptability, rather than knowledge, is the greater sought after skill. Even simultaneity has become too slow. Instantaneity is the quest of choice, and literacy is not simply becoming visual, but is increasingly an adeptness at navigating and conjoining the gap between word and image at lightning speeds. In the fictional realm, Diana Reed Slattery's futuristic *Glide* language is an acknowledgement and revisioning of the changing nature of literacy:

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[15] See Martin Dodge and Rob Kitchin's *Atlas of Cyberspace* for a wealth of examples. Accessible online at: <http://www.cybergeography.org/atlas/geographic.html>.

> After more than five millennia of toeing the line, the prevailing linear, two-dimensional, rectilinear ordering of writing systems is under siege. From the subtleties of interfacial evolution to the screeching in-your-face of punch-drunk TV ad typographies, the topologies of inscription are changing at an accelerating rate. Barbarous linguistic impulses transgress the borders of TV and computer screen, leaving the lines of language, on which all governing syntaxes and grammars sting their laws, bent, dissolving, broken, reassembled in the acid of shifting light. (Slattery *Glide* Website).

iii. Writing as a Mnemonic Technology

"A code is not the destiny of the history that mobilizes it, but only the trace of the histories that precede it." Alison Butler

Writing, while it evolved as a mnemonic technology, was quickly perceived to be a hindrance to memory. Socrates (the illiterate) tells a story about Theuth, the legendary inventor of writing in Egypt, in Plato's *Phaedrus*:

> 'This invention, O king,' said Theuth, 'will make the Egyptians wiser and will improve their memories; for it is an elixir of memory and wisdom that I have discovered.' But Thamus replied, 'Most ingenious Theuth, ... you, who are the father of letters, have been led by your affection to ascribe to them a power the opposite of that which they really possess. For this invention will produce forgetfulness in the minds of those who learn to use it, because they will not practice their memory. Their trust in writing, produced by external characters which are not part of themselves will

> discourage the use of their own memory within them. You have invented an elixir not of memory but of reminding; and you offer your pupils the appearance of wisdom, not true wisdom, for they will read many things without instruction and will therefore seem to know many things, when they are for the most part ignorant and hard to get along with, since they are not wise, but only appear wise' (274C-275B).

While Socrates' position on literacy might be a bit suspect (and we as teachers might wish that our students would undertake more of such reading), there is an element of truth to this. No more do we perform great feats of memory. And, furthermore, the more we read and write, deluged as we are with a tidal wave of information by the mass media, the more we forget. It is out of this urgency to remember, fears of forgetting and the need to chart an ever-growing matrix of associations that hypertext was born.

Both Tim Berners-Lee and Ted Nelson conceived of hypertext as a tool to assist them with memory difficulties. Berners-Lee first devised a personal precursor to the World Wide Web before he released the later version to the world to help him cope with massive quantities of associational connections he had to manage in his work (Davis 199). For medical reasons, Nelson is incapable of remembering in the short term. Nelson in the flesh manifests himself as a walking curiosity cabinet: a conglomerate of writing implements, recording devices, file folders and office equipment (Tofts 103). The fractured window of Nelson's Attention Deficit Disorder world forces him to deal with information as a process of reconstruction, in fragments or shards. Deprived of short term memory by his affliction and reconstituting everything from bits and pieces, Nelson inhabits a hypertextual world. Darren Tofts casts Nelson both "*as* hypertext" and as a latter-day Shem the Penman from *Finnegan's Wake* who writes the text on his own body (103). Nelson is an embodied text or a metatext of his own cognitive processes. He writes himself.

From Nelson's compulsive documentation to Jacques Derrida's engrammatological concerns with memory's modes of inscription to Sigmund Freud's mystic writing pad, the interest in memory is always connected to issues of data. The obsession lies with methods in which this wealth can be encoded, stored, retrieved and decoded. As such, memory is intrinsically linked with writing technologies—how memories are imprinted or impressed on us is the basis for the science of engrammatology—and with concerns of time (organization and storage) and space (retrieval). For Aristotle, memory was sensory. Perceptions, senses and thoughts were a stylus to him that recorded events in the mind across time (Krell 14-15). The senses write themselves in readable ways like memory. Out of the sensation of time passing and our storage of memories, remembrance occurs in sensory space "metachronically," that is with an awareness of the mnemonic nature of our experiences (Krell 15). Memory is a dynamic process, encoded through the senses in the body, but, where for Aristotle memory was primarily visual, the art of writing itself has more and more externalized our mnemonic processes.

While it has been a prevailing philosophy that memories encoded in the body are temporal, another school of thought, introduced by Plato in *Theaetetus*, is concerned with spatial memory: a disembodied memory that encoded "purely psychic, not somatic space" (Krell 51). For Plato, the body could store memory only in the present tense, whereas "pigeon-holes" encoded it spatially: "The Pigeons, Plato says, stand for bits of knowledge, some in flocks, some in small groups, some solitary. When we are infants, our coops are empty, and as we acquire pieces of information, we shut them up in our enclosure – this is called 'knowing'" (Carruthers 36). This knowing is the product of print literacy and the philosophical and theological abstractions that come with it. It is also an innately associational way of dealing with information. Psychologists who study it (specifically in reference to air traffic controllers—who perform probably the most elaborate ballet of temporal and spatial negotiations known in the history of humanity) call it 'situation awareness' (Gladwell n.p.). Both temporal and spatial memory—two different types of information storage systems—are significant for the manner in which they allow for digression, a kind of meandering in the order of recall just as electronic texts do; these are associational linkages within their structures.

Attempts to entirely separate the body from the mind in mnemonic matters have never been wholly successful. From the inner writing of the *Ad Herennium* to the Derridean trace in the archive, the body and mind continue to interconnect. In the age of reason, René Descartes was anxious to amputate the intellectual from the corporeal. Rejecting the notion of a soul in the machine, he decided that memory was a science that could be mechanized and externalized into automatons. In the same manner, theorists of pseudo-science, cyberspace and virtual reality à la William Gibson strive for an ideal of leaving 'the meat,' the body, behind and achieving a state of disembodied consciousness. The interweaving of "the body of memory and the body-space of memory," however, continues from classical constructs straight through to the theorizing of modernity (Krell 52) and presence in memory is always virtual space, a place in the mind and/or body. Theorist Edwin Straus posits a *Phenomenology of the Trace*, which he aligns with memory. The theory of the trace is a combination of the "course and flow of past events" and future events, a matrix of references constituting a system, and a text, the trace itself, to be 'read': "'Traces must be read.' But this means that the functioning of traces does not *found* memory; rather, the *reading* of traces presupposes memory. Memory must therefore be a constituent of the global phenomenon of being-in-the-world" (Krell 91). The Derridian trace is both spatial and temporal, perpetually in motion in both dimensions, and therefore dynamic in its ability to elide presence. Where for Freud the memory-trace was information stored only in the subconscious, the trace for Derrida is a system of *différance*, plugged into the archive of writing itself that is always virtual and integrally connected with language, science, theoretical mathematics, information theory and cybernetics (*Of Grammatology* 9). For Derrida, the trace is the network that is inscribed engrammatologically in writing's subconscious and both fosters and underlies arche-writing, cultural memory and future memory—overwriting, if you will, any notion of presence. Under cybernetics, Norbert Weiner also believed that, just as memory determines how we perceive our identity, the individuality of a computer lay in its "memories" (qtd in Davis 90). This is an algorithmic ontology of cybernetic memory storage. Likewise more recently, Manuel Castells divides contemporary society, what he calls Network Society, into two similar divisions: the Space of Place, an embodied existence, plus the Space of Flows, the virtual realm of informational and economic networks.

It is with modernity that the scales shift and the body as an associational structure reacquires a prominence in constructs of memory that it has not had since Aristotle's day. Sigmund Freud, who conceived of the subconscious and structured it like a language, reconceptualized memory and forgetting as embodied activities. For Freud, the psyche was both a topological, virtual space—a site of digression that functioned as a "space of writing"[16] (Spivak xxxix)—as well as a state of information overload (Spivak xlii). Memories were inscribed on the mystic writing pad of the psyche and the memory-trace inhabited only the subconscious. Hysteria under Freud becomes the body's encoded means of speaking repressed or forgotten memories. In his analysis of Freud's theories, Jacques Derrida, who sees memory and writing as forms of archivization, finds the interplay of memory and repression irreducible: the archive preserves the repression as the repression represses the archives (*Archive* 64). Memory and forgetting for Derrida, as much as for Deleuze and Guattari as was discussed earlier, thereby become inextricably intertwined with neither being capable of existing in isolation. For Freud, memory was an engrammatology: on the one hand, accessible memories were inscribed in the neural net and, on the other, they were encoded and repressed, symbolically inscribed in the flesh. It is trauma that imprints itself on the body as a cryptic and metaphorical language. The notion of trauma in electronic writing spaces—and healing as a function of browsing—is something that I will discuss at multiple points in this work.

French phenomenologist Maurice Merleau-Ponty also conceived of an embodied memory, a "hollow," crux or crucible (similar to Plato's *chora*), that was centred as much in the animated flesh of the body as in the realm of the living world (Krell 6). He believed that memory and perception arose from an organic relationship between the body in space and the world: "to be a body is to be tied to a certain world," and that "our body is not primarily *in* space: it is of it" (Merleau-Ponty 148). Consciousness for him was perceptual, temporal and spatial and therefore centred in the body. In an attempt to eliminate the traditional dichotomy between subjective and objective experience,[17] he defined the gap between our consciousness and our lived experience as a fundamental rift or repressed memory marking what perception has forgotten. For Merleau-Ponty, the body was a mode of access to the past: "the body assumes the role of a mediator in memory. Time is read off from the body because time incorporates itself in the body, is sedimented there: the body appears as temporality, sedimentation, temporalizing, corporeal mediation between me and the past" (Merleau-Ponty, qtd in Krell 101). And, for him, the conscious mind forgets what the body knows. The sediments are cumulative and indicative that the past is always absence so—along with Jacques Derrida and Emmanuel Levinas—Merleau-Ponty concludes that there never was an originary past (Krell 95).

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[16] Jay David Bolter's discussion of hypertext as 'topographic writing' and as a 'writing space' bares a striking similarity to Freud's conception of the subconscious. Bolter's views will be discussed later in this chapter.

In our time in the realm of digital narrative, Jackson, Coverley and Slattery are exploring feminist possibilities for originary pasts, possible futures, re-embodiment and sensuality in transformative environments where space joins memory, forgetting and bodily sensations with navigation in real time. This is a method that celebrates the mnemonic hybridity of the electronic medium. These three authors use virtual space as a feminine language, incorporating (both visual and textual) space and time into the body simultaneously. There is little hierarchy in their virtual works that is not problematized, and they frequently bypass authority in order to speak the language of sensation as a primary voice, privileging the subjectivity of the interactor in mnemonic space. This is the language of Julia Kristeva's semiotic *chora*, similar to Merleau-Ponty's hollow and Freud's unconscious, where the aspects of the semiotic concerned with expression, representation, gesture, sound and pattern are non-verbal. This is the unspeakable that our words exist in opposition to; like a repressed memory, *chora* is a place that we can only ever know of, not know. This is what Kristeva found in the Derridean trace, where chora will take no imprint, where every impression is immediately erased. It is a space without surface because it has neither mass nor depth (Derrida, qtd in Ulmer, 1994, 65). *Chora* is clearly virtual and like immersive spaces it impresses itself on our bodies. Because *chora* is analogous only to vocal or kinetic rhythms, it is also a fluid representation of the subconscious self and the body. These feminist authors link the changing depths of subjecthood and body to language through virtual space and actual navigation, and make these fluid boundaries real. These virtualities impress themselves on our bodies (as opposed to telepresence which impresses itself on the mind) in our subjective experience of their art. In the electronic spaces of their hyperlinked texts, the inscribing motion of navigation produces agency for its readers through browsing as an act of active memory excavation. This is the inverse of Nietzschean *oubliance,* the joyous act of willful or deliberate repression (Spivak xxxi). Interrogating what has been forgotten, repressed or left out, these authors reinstate memory, forgetting and healing for feminist ends as an embodied process.

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[17] I will be discussing three constructs of the trajectory between the subjective and the objective in these pages. Canadian media theorist Derrick de Kerckhove posits a "point of being" (1997, 84) in his book *Connected Intelligence*. Rather than a point of view, it is a state of visual transition in multiperspectival moments. As simultaneously all points of view and none of them, it is an ontological state. Philosopher Paul Virilio calls for a transitional state of being called the "trajective" that exists in between the perception of the subject and the situation of the object in a condition of perpetually shifting motion (1997, 24). The third construct is that of the fractal subjectivites incorporated within quantum feminisms themselves. These are situated knowledges existing in a state of sensory transition between image and text and the subjective and the objective. They are relentless embodied, material and mnemonic as they gesture toward a history of the future. They can only exist as personal philosophies in space and time and, as such, are constantly in a state of flux.

As an engrammatological technology, electronic texts are also concerned with their own writing. Metatexts are integral to feminist projects as a critique of power structures and male-dominated systems. Where the feminist avant-garde in print has been particularly concerned with the powers of language (and what falls outside it), cyberfeminists deliberately cast themselves in the role of bricoleuses taking the world apart and reassembling it in new ways piece by technological piece. What are the implications of this difference in focus for quantum feminist literature? There is no single unifying storyline in these feminist texts, but instead their hyperlinked spaces become a quantised environment, as much lived-in as living space, and a microcosm of the world. This is a microcosm that privileges what normally gets left out, that critiques notions of linearity and questions the very foundations of narrative, cultural memory and language. This is space that remembers. It is also, therefore, space that can question what gets forgotten elsewhere. It can question what stories are not told. It can find ways of speaking the new meta-orality that are outside of the realm of propriety or of language itself: Shelley Jackson recasts Mary Shelley and her female monster as lesbian lovers authoring the body of the text that is the monster's textual body, M.D. Coverley encodes the secrets of *Califia* in a character with Alzheimer's Disease who must speak what she has forgotten with her body, and Diana Reed Slattery creates a maze of language and linguistic dance that is mnemonic, embodied, and sensory. Secret languages get deciphered in these texts, fluid spaces charted and multiple stories told.

iv. Women's Writing and Feminisms

"All my observations are made from within the matrix of possibly infinite contingencies and contextualities. This sense of contingency is ultimately intrinsic to my experience of the self, as a relationship rather than an existence." — Lyn Hejinian

Discussions of women's experimental fiction have been rare and studies of their writing in the context of an avant-garde even rarer. For the most part, any critical writings exist in isolation, usually studying a single author. There are a few exceptions. Alice A. Jardine in *Gynesis: Configurations of Women and Modernity* examines the interdisciplinary nature of women's writing and how, under modernity, it incorporates political, materialist and philosophical concerns ranging from physics and psychology to phallocentric discourse. In *Breaking the Sequence,* Ellen G. Friedman and Miriam Fuchs identify three generations of experimental women writers. The first generation includes Dorothy Richardson, Gertrude Stein and Virginia Woolf, who each worked to isolate gender differences. The second generation is also a collection of staunch individualists: H.D., Djuna Barnes, Jean Rhys and Jane Bowles. Less given to theoretical concerns, their works either ignore patriarchal forms altogether or satirize or dismantle traditional 'masculine' literary structures. The third generation is a postmodern, post-1960 one, and it marks a radical departure from men's fiction:

> Contemporary women experimentalists, declare themselves on the side of ruptured and unreliable narrative; for in spaces created by ruptures and anxiety provoked by the unreliable, they continue the project of a feminine discourse that not only can bear the meanings unbearable in master narratives, but can provide a hopeful alternative" (Friedman and Fuchs 27).

Paradox is the preferred mode of engagement in this playful generation that "interweave(s) hallucination, memory, fantasy, and present action as if they were the same: the novel's 'events' become a shifting constellation of elements that resist coalescence, making 'what happens' elusive" (27). Already there is a clear parallel apparent between print-based postmodern experiments and the digital writings of a newer generation of writers, although their end *modus operandi* and goals are quite different.[18]

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[18] Two new studies have been published in the last year: Ann Vickery's book, entitled *Leaving Lines of Gender: A Feminist Genealogy of Language Writing*, from Wesleyan,

In "Women Writers and the Restive Text," Barbara Page undertakes the first examination of women's experimental forms that includes writing in the new media arts. While Page largely studies this writing in the context of print, she does explore concepts of interactivity that did not exist on paper.

The first full-length study of feminist work in the new media was my own "Queen Bees and the Hum of the Hive." I undertook this overview because women's works were by and large being excluded from the many sites of hypertext fiction on the Web, and, it seemed to me, that that meant much of the best work was being omitted. In that essay, I examine issues of language, discourse, translation, and feminist modes of speaking that are evident in many of women's early works on the Web. While I mapped issues connected with the new literacy, as a first survey of what was out there "Queen Bees" is more concerned with cataloguing the myriad discourses and texts than with focusing on particular texts or individual discourses. In 1999, my Gallery, *Assemblage,* debuted at the trAce Online Writing Community to further the goals of my earlier essay and to commence a discourse—still ongoing—about what it is that women are doing that is different from men and why that matters. The Gallery, housing several hundred texts by women, has facilitated conversation, community and a feminist awareness of the implications of our field internationally.

In February 2000, Marjorie Coverley Luesebrink and I published a selection of highlights from the Gallery as "The Progressive Dinner Party" (in homage to Judy Chicago) in the online journal *Riding the Meridian.* Later that year, the companion piece called "Jumping at the Diner" featuring works by men, curated by Luesebrink and Jennifer Ley, was also published in *Riding the Meridian.* The selection criteria for both sites had been literary and artistic excellence, along the dividing lines of gender. N. Katherine Hayles presented a paper at Pennsylvania State University studying the marked gender differences that emerged in the two collections' 39 works by 39 authors. She says:

> Content and thematics alone neither qualified nor disqualified anyone. Yet the sites display a pattern so obvious it can scarcely be missed. Whereas the women's works display a multifaceted and persistent concern with the body and embodiment, the men's works show a similarly persistent fascination with chance and randomness. At issue in both these thematics, I will argue, is control: who has it, who wants it, how to achieve it, how to satirize it, but also how to create strategies for living and working in distributed cognitive environments where agency is dispersed and thinking

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and, published December 2001, *We Who Love to Be Astonished: Experimental Women's Writing and Performance Poetics*, edited by Laura Hinton and Cynthia Hogue, University of Alabama.

> takes place in machines as well as humans. It comes as no surprise, of course, that both men and women are concerned with control, nor is it news that they conceive of it in different ways. Taken as a group, these productions show how these well-established cultural thematics mutate in a Web environment and become transformed into hybrid productions where the simulation powers of the computer cause them to take distinctive new forms and express new kinds of subjectivities (Abstract).

Issues of control and the matter of who is speaking are, of course, as central to any feminist project as issues of ownership are around the body. The apparent 'gender difference' in the new media is, therefore, being realized in terms of the different scope of their political projects.

Women's writing in the new media is not a departure from the literary tradition either, but a continuation of the work that women in print have been undertaking throughout this century. Virginia Woolf and Gertrude Stein both experimented in ways which would not be out of place in the virtual spaces of the Web, experiments which explore voice, vision, the senses, the continuous present tense, broken sequences and the splicing or subversion of genres. Stein's views on collage, "the whole makes meaning," are as relevant to web.arts as Woolf's "tampering with the expected sequence." is; "First she broke the sentence; now she has broken the sequence" (qtd in Friedman vii). The major difference in their goals and aims, however, lies in the differences between modernism and postmodernism and in the gap between analytical science and systems theory, rather than in the gap between print and digital literacies. Stein and Woolf strove to find a unified whole while new media feminists, like quantum physicists, strive to fracture the system as a means of identifying the quantised patterns in the whole. But regardless of the shift in focus over the last century, the aims have remained remarkably similar. Stein and Woolf both use sound as immersive environments and where Stein's lists have no hierarchy, Woolf's spiral cycles have repetition but no progression (DuPlessis 106-107). More recently, Christine Brooke-Rose, Carole Maso, Susan Howe, Lyn Hejinian and Carla Harryman (who is also producing works for the web) have experimented with visual narrative and fractured sequences in print in ways that reveal similar concerns to the feminist experimentation in digital narrative. Brooke-Rose calls women's writing "language in random access" (21), and Harryman says in her hybrid writings in *There Never Was a Rose Without a Thorn* that "the shape of story ought to be a spiral of doubt" where the conclusion is "a point of departure" (61). Susan Howe writes a 'grammar of hesitation' in *My Emily Dickinson.* In *Ava,* Carole Maso calls for a new kind of literature:

> You will have literary texts that tolerate all kinds of freedom – unlike the more classical texts – which are not texts that delimit themselves, are not

> texts of territory with neat borders, with chapters, with beginnings,
> endings, etc., and which will be a little disquieting because you do not feel
> the
> Border.
> The edge (113).

Lyn Hejinian's literary autobiographical experiment in fractured subjectivity, *My Life,* is a self-proclaimed "oral history on paper" (7) where "strict chronology has no memory" (13) and, in *The Rejection of Closure,* "the form is not a fixture but an activity." The illusion of sameness, however, between print and the new media—what Barrett Watten calls the "demon of analogy"—is deceptive. There are very real differences between print writing and the experimental forms in the digital realm.

The archival forms of the new media are antithetical to narrative. (Any attempts to chart the process of forgetfulness may prove as problematic as this effort to tell the story of the anti-narrative of the archive.) Theoretical frameworks are performed, not written, and so therefore derive their meaning via the body's (that is to say, the browser's) interaction in space. All semblance of order beyond reading order is illusory in these texts; there is only sequence and no succession. This is why this kind of narrative frequently frustrates, locks you out, traps you in feedback loops, boxes you into dead ends. It is a cognitive process map that must be experienced. It is sensory and mnemonic space. The more you try to analyse it, the less meaning it has. This is the new kind of literacy. The collision of word and image (and sound and other multimedia elements) has a real distinction from text writing that most print-based critics seem to miss, even in reference to artists' books and other illustrated forms. This coming together and pulling apart is epistemological, syntactical, temporal and spatial. It is a literal synaesthesia, a confusion of the senses, and these performative spaces pull a reader in all directions at once.

One misconception about the digital arts is that the text can be printed off the screen and read in a more conventional way. However, the text portion will not stand up on its own as text, for it is only one of the conceptual and/or syntactical elements at work in this form. They are a system or process that cannot be divided or they are an incomplete grammar, amputated limbs of a larger body. Sharing similarities to the conceptual arts, the new media are ultimately much more like performance art or installation art than other conceptual forms. The digital medium in cyberfeminist hands often maps issues that concern the meeting of the body/text/image in space. The new media actually perform their own theory, not generally talking about what they are doing, but with the theoretical being enacted—or lived—in time and space.

The massive changes North American society has undergone in the last few decades, particularly in the realm of technological innovation, have wholly altered the relationship between image and text as our culture has become permeated by the visual as one element of text. This development has shifted our relationship to perspective, to language, to systemic structure, and to narrative forms as well. New media texts refuse reading in a linear fashion. This invites us to spiral, to digress, to read cyclically in all directions at once as the materialist concerns make 'space' for the fiction. The archival text, evolving from poststructuralist disjunctures in thought including French feminist theory, is rooted in systems theory, nonsequential reading and the visual language of connection, making explicit those associational elements of reading we take for granted. Truly interactive texts (what Michael Joyce calls 'constructive hypertext') can exist only in electronic environments. They invite the reader in as an active element in the system, blurring the boundaries between reader and author, where she (re)constructs the text through the choices made in her browsing. This is a performance that requires a response. Constructive hypertext is rooted in a continuous present of the immediacy of our reading choices and doublings back, privileging subjectivities, polyvocality and ruptures in space-time. It is the antithesis of a bridge, focusing instead on a matrix of associational leaps between words or images or both. The medium's trademark automated link is the first punctuation mark of the spatio-temporal dimension, and no doubt many more kinds of these marks will be designed before the literary conventions of the new media mature into a standardized form. As a spatial medium or 'topographic writing,' as Jay David Bolter defines hypertext (and which we can now see more clearly as topological writing, writing that occupies geometric space), it is simultaneously "visual and verbal...not the writing of a place, but rather writing of or *with* places, spatially realized topics" (Bolter 25). Like a breath or a pulse between words, digital narrative embodies a sensuous fluidity as a dynamic medium that is perpetually in motion as a browser literally navigates its textual spaces across different dimensions. (Notably, print author and theorist Nicole Brossard defines the birth of thought in fiction in terms of four movements that are literal revolutions in structural narrative: oscillation, repetition, spiraling and floating [1988 91-92]).

Michael Joyce calls hypertext and its linkages "a conversation with structure" (94) and Jackson, Coverley and Slattery have woven into their dialogic narrative structures issues of form, conversation, listening and silence where women's conversation is rooted in the 'place' between speech and writing. The labyrinthine structures of time and female subjectivity permeate these three authors' texts, making feminine ways of speaking audible in open-ended narratives rooted rhizomatically in languages of the senses, languages that give criticism a space to speak. The hybrid nature of the meeting of media allow them to "work the interface" between the creative process and reading, between bodies and materialist concerns, between conventions of the media and discourses within texts (Moyes 309). Coverley illuminates originary feminist discourse in a poetics of navigation; Slattery explores the sensory collage and gap that is woman in patriarchal culture in a poetics of space; Jackson listens to her echoing pulse with a poetics of silence. Their narratives all interrogate the site of connection between voice and writing, image and text, history and genealogy, and politics and fiction where the marginalized feminine is privileged as the fulcrum between what cannot be articulated and what is only seen and sensed.

Just as the interplay between image and text are two ways of speaking, woman is the amnesiatic gap in patriarchal culture—without which that culture could not exist. This is made explicit in the writings of these three authors as they literally write across sensory barriers, between modes of speaking, and investigate the disjuncture between women's ways of telling and constructs of history. They attempt to subvert patriarchal language in their writings by finding ways of speaking in the feminine—something which can only be gestured at within patriarchal language—and to articulate women's place in the universe through writing prehistories of the present (or, in Slattery's case, the future). Their deliberately disruptive linking of genres has made explicit the gaps in the fictional nature of women's reality, particularly through the privileging of subjectivity in their politicized fictions and through deconstructing memory and notions of a monolithic subject. And, rejecting linearity out of hand as a patriarchal method through their choice of media, Jackson, Coverley and Slattery speak the fractal subjectivities of their labyrinthine structures as a form of resistance and of revolution. The process of writing becomes a means of, as Gail Scott puts it, "creating a conspiracy between remembering and one's desire to move forward" (20). There is a perpetual tension at work in these archival texts against sequential narrative, the tension inherent in suturing incompatible things together: the tension of collage. Likewise for Brossard, the text of women's memory is a visual site of "an un-recounting, a narration that goes against the grain" where she can tell her story backwards as a counting down to the explosion of repressed history ("Memory" 44). Women's conversations with structure utilize embodied or sensory memory in the writing process as a method of speaking the edges, of listening against the boundaries, of hearing the voices of women's experience in a deaf and deafening world. Barbara Godard called this "a reading *with* rather than about the text" (54). This is not an operating system, a new version of an old history or a way of silencing patriarchal discourse. It is a living, organic network of interconnected forms, words, images and gestures. It is a gestalt. It is a strategy for listening. It is the essence of conversation.

Brossard says, "To write now and in the year 2000 means: to write what has never before been thought in the history of *Man's memory*" (original emphasis; 1988, 99). She sees the revolutionary change that Western society and media is undergoing as a birth of new metaphors connected with gender and with the computer (99). This is a spatial change integrally connected to the senses, to women and to women's discourse. As a part of this, she sees narrative form—since it is constructed, it is inherently 'technological'—undergoing an evolution and, "if," she says, "there is a *term* for fiction, it surely has yet to be invented" (original emphasis; 100). Women have always been at the forefront of the development of fictional forms and now they are combining those forms with the new media and with a wide variety of political discourses in radical ways. These are the same ghosts heard in discussions of hypertext, "always haunted" as it is "by the possibility of other voices" (Joyce, 1995, 114), the flood of these voices seeking revolution in structural visions through the sensuous, vocal spaces between words and ideas. Jackson, Coverley and Slattery's straining against the bonds of print narrative (and visual perspective) is made flesh in the next logical evolutionary stage in narrative form: the fluid sensorium of the archive's multi-dimensional subversions, which "resist ... attempts to wrestle it back into analog or modify its shape into the shape of print. Its resistance is its malleability" (Joyce, 1995, 102). It is malleable resistance that is at the heart of the feminist project.

The new media arts are well suited to exploring open-ended forms as new constructs of narrative without being innately feminist in and of themselves. Embodying many of postmodernism's principles of indeterminancy, the schematic of archival narrative has been drawn as a rhizome, a molecule, a matrix, a network, and a web, among other metaphors. But none of these is particularly satisfying or accurate. They are inadequate because electronic writing is molecular, multi-dimensioned, embodied, performative and *peopled*. Feminist texts in virtual space strive for a collective, interactive experience bearing more resemblance to a gathering in a marketplace than to cyberspatial surfing. And, in acknowledgement of their political aims, these literary texts make us want to talk back. These texts are contextualized systems in process. So called narrative is merely an emergent property that arises from the interplay of the web of relationships among words, images, objects, ideas and our interaction within the whole.

What is integral is that database narrative does what we cannot do in books, what we cannot do on the page. The disorderly order of hyperlinked writing can exist only in an electronic environment occupying imaginational space because, like dreamspace or the subconscious, it is fluid, polylingual (textual, visual, sonic, aesthetic), virtual, multi-disciplinary and multi-dimensional. Greater than the sum of its parts, it opens a window on aesthetic and embodied space. We cannot print it or reduce it to two dimensions, for electronic text's function is like a Derridean memory-trace. The meaning is always behind the present word, beyond discourse, just out of reach. In this domain of shifting horizons, we cannot navigate it either except in (a potentially infinite number of) limited ways; we must surrender ourselves as readers to its performative and frequently unpredictable flights of the mind—the jumps in thought—that are made explicit in the author's pre-programmed links. The fluidity of this choric or mnemonic space precludes notions of linearity, not to mention that of a centre or of margins. Positively centrifugal, a true archival text creates its own ecosystem, a language game, and "a structure of possible structures" (Bolter, 1991, 144). This is a process of embodiment, as Michael Joyce has noted of earlier text-based new media incarnations:

> hypertext both embodies and is itself solely embodied by what in print is an invisible process. The screen enacts the ground zero of reading. There the reader of a hypertext not only chooses the order of what she reads, but her choices, in fact, become what it is. The text continually rewrites itself and becomes what I term the constructive hypertext: a version of what it is becoming, a structure for what does not yet exist (Joyce, 1995, 235).

As browsers, we immerse ourselves. We construct our own rhizomes of meaning out of the potentialities in the structures that the author has laid out before us. We must open ourselves interactively to very personal and collaborative readings, to fractal perspectives and fluid architectures, to a process of tracing the contours of the form of the narrative(s) we encounter. For Joyce, contours are a key element of the experience of new media writing. The contours or texture of a text are the transformative, sensual space of the browsing experience:

> Contours are discovered sensually and most often they are read in the visual form of the verbal, graphical or moving text. These visual forms may include the apparent content of the text at hand; its explicit and available design; or implicit and dynamic designs which the current reader or writer perceives either as patterns, juxtapositions or recurrences within the text or as abstractions situated outside the text (Joyce, 2000, 22).

Under this many layered form, it is too easy to mistake the words, the striated space, for the meaning. The meaning is emergent and performative, enacted through interaction with the smooth. If you try to quantify it, it evaporates. Electronic narrative is contour and texture, surface and depth. The meaning is the act of reading. The words are only one part of this textual machine, and arguably the least important part.

There is an intimacy contained in the archival text that draws us in. It speaks directly and personally in a manner different from the paper page. Stuart Moulthrop has said that hypertext "does not aim for impersonality but rather for discursive intimacy, not entrancement but engagement" (1997, 661). Quantum feminist writing in the new media engages us so directly because it shocks. Being literally 'sensational,' it draws us into an interactive and immersive space by speaking between mediums and across discourses in startling ways. Artists and poets have traditionally served a mélange of mixed media with their art; there is nothing new in that. Marshall McLuhan called this a "hybrid technique" that is essential to creative exploration (1964, 63). He elaborates:

> The hybrid or the meeting of two media is a moment of truth and revelation from which new form is born. For the parallel between two media holds us on the frontiers between forms... The moment of the meeting of media is a moment of freedom and release from the ordinary trance and numbness imposed by them on our senses (1964, 63).

Feminist discourse in digital narrative uses the meeting of a collectivity of media (by definition multimedia) to shock us, as a means of social critique and commentary, and to engage us in conversation. Using the mainstream media's tools against itself, these women artists incorporate everyday images and ideas and make them new through startling juxtapositions that affect us on the level of sensation. This is not simply a merging of text and image, but a new way of drawing text and of speaking image. This is a synaesthesia so tactile that it stings the eyes, ears and mind simultaneously.

For Gertrude Stein, the only thing that changed from one generation to another was our sensory perception. She defined vision as the dynamic in the creative system that transformed our sense of time and produced new schools of thought and art ("Composition" 513). Theorist Luce Irigaray, like Rosi Braidotti after her, rejects disembodied vision because the hierarchy privileges the gaze of ownership over all other senses. The movement is therefore towards sound and touch in feminist work, senses that are privileged in virtual spaces. Donna Haraway in her "Cyborg Manifesto" calls for re-embodied seeing as a kind of re-connection to the material and technological worlds. The Art of Memory too, as an embodied form, called for an engagement of all of the senses and an awareness of one's environment (Carruthers 95). For all of these practitioners, this is a call for writing – forms of remembering and re-visioning – to become an engaged, networked, experiential, material and political project. It is a call for us to become browsers.

Where women's writing in the new media might well be considered the next or fourth generation under Friedman and Fuchs' system, current literary new media work also conforms to a generational model. The kind of texts that I am studying in this work might be considered to belong to the second and third generations of electronic writing. The first generation of hypertext was created by programmer artists with hand coding or with HyperCard[19] and was built on the ideas of Vannevar Bush and Ted Nelson. These pioneers undertook explorations of the new computing technology, drawing the first maps of electronic texts and exploring the concept of automated links, but in textual forms that contained few, if any, graphics. Few of these early examples function on contemporary computing systems. The first electronic hyperfiction was written by Judy

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[19] Arguably the first commercial hypertext system, it was a primitive but flexible software that worked on the model of filing cards. It was produced by Apple for the Macintosh.

Malloy in 1986. *Uncle Roger*, called a "narrabase" by Malloy, was envisioned by her as a "pool of information into which the reader plunges repeatedly" (Malloy, 1998). While graphics and colour have been added for the 1995 web translation, Malloy originally posted this on the equivalent of an online conference, the Art Com Electronic Network on the WELL. More than a text, it was an online interactive experience: the audience reacted, commented and made additions to the narrative (Malloy, 1998). Hypertext's second generation was born of a single, visionary work: the 'Gutenberg Bible' of hypertexts was Michael Joyce's *afternoon, a story* (1987). This generation introduced much more sophisticated automated links, colour, and random elements and started to integrate both typographic design and images as a part of the text. Included in this family would be Carolyn Guyer's *Quibbling*, Judy Malloy and Cathy Marshall's *Forward Anywhere*, and Shelley Jackson's *Patchwork Girl*. The third generation of hypertext is now in full swing with the introduction of animation, VRML, movies, sound, JavaScript, Flash and Shockwave files, cgi functions, and other sophisticated elements into literary texts. This current generation embodies a truer interactivity and consists of literary texts that do not simply use images, but integrate the visual element—including dynamic perspective—as a part of the narrative and physical structure of the text. This includes the likes of Christy Sheffield Sanford's *Red Mona*, Adriene Jenik's *Mauve Desert: A CD-ROM Translation*, Caitlin Fisher's *These Waves of Girls* and, particularly, Coverley's *Califia* and Slattery's *Glide*. In this third electronic incarnation, the distinction between 'artist' and 'writer' (and, one could argue, 'programmer,' if we consider programming to be a creative form) begins to break down—a symptom of the avant-garde to be sure. Jean Gagnon states that what we are witnessing is a "paradigm shift" (291), a change in the way we perceive and interact with culture and media and, therefore, with the ecology of the world. Ted Nelson says that we are undergoing "paradigm shiftlessness" (qtd in Moulthrop, 1997, 667):

> That is, industrial society has been struggling for a century and more with rationalistic, theoretical, revolutionary models for everything from political economy to popular entertainment, but we have yet to escape the enduring nightmare of grand solutions, or what we might call general systems hubris. If paradigms shift, new and similarly delusive paradigms replace them; or as now seems apparent, the new are simply blatant reassertions of the old." (Moulthrop, 1997, 667)

This is what Jay David Bolter and Richard Grusin call the double logic of'remediation.' As for McLuhan, for them the content of one media is always another media. Under hypermedia, what viewers want is the transparency of the media to be foregrounded, denying the medium and erasing the interface in order to privilege the content, content that is more and more about forms of remediation (5). All the more reason, therefore, to work within a paradigm of quantum philosophy and personal systems.

Back in the 60s, McLuhan argued that this transition exhibited all the growing pains of a metamorphosis: our entrance into a third age of historical comprehension. Drawing on German historian Jean Gebser's vision of three mutative stages of historical development, McLuhan saw the first age as the unperspective world, that of the pre-Socratic philosophers with their belief in the holistic unity of all things. The second age was the perspective world of the Renaissance, where linearity and trajective lines of sight were born through the written and, particularly, the printed word. Gebser's third age, McLuhan argued, is what we are living now: an aperspective world birthed from the spark of electricity and come of age in the computer. In the third age, post-literacy (what has been discussed earlier as Ong's age of secondary orality or what Gregory Ulmer calls electracy) dominates and the analog is replaced by the digital, shifting our perception of our senses and the way in which we interact with our environment. (qtd in Gagnon 293-294). The works I am studying exist on the faultline of a volatile structural shift away from linearity and towards interconnectedness, and, just as the names of the form and its quantum nature are constantly in flux, so its future development is wildly unpredictable. What is clear is that a new fractal perspective, not an aperspective that Gebser posits but instead a panperspective or, more exactly, an orientation, is emerging in literary texts. This new perspective is a systemic way of thinking or an ecosystem that blends the concepts of the community with that of the network (Capra 33).

Experimental women's writing—from Mary Shelley's gothic birthing to current experiments in written and electronic forms—is concerned with altering traditional structures as a means of speaking against the realist tradition and the mainstream. Barbara Page (in agreement with Ellen Friedman and Miriam Fuchs in *Breaking the Sequence*) identifies experimental women's writing as "discourses of resistance" (Page 1). In the same way, the new media embodies a swarm of discourses of subjectivity because—by its very nature—database narrative is an interactive "irritant" (Moulthrop, 1997, 666). It stings our expectations. It exists in collective opposition. Its open-ended nature makes explicit the edges of expected form. By escaping out from between the walls of unexpected places in unexpected ways, it automatically creates a phantom metatext of our own expectations as readers. It echoes the word-based text as a deceptive touchstone, a kind of simplified road map, or a translation of the intent of the work into readable and recognizable form. It signals the interplay between the new media and the expectations we have of form and language. Jackson, Coverley and Slattery's texts are actually vortex(t)es of visual engagement, clusters of flows and orientations. The words are just the content. They are ur-texts and as such are not reductive to the meaning of the whole. They are directional indicators, if you like, for what is being enacted outside of language in information space. Telling you what you are looking for and experiencing, the words are trace records of the process of becoming in the present moment. Through this privileging of our own subjectivity as browsers, the archival text speaks the language of sensation as a primary voice.

Joan Retallack in ":RE:THINKING:LITERARY:FEMINISM:" talks about how postmodernism aligns itself with elements that have traditionally been relegated to the 'feminine' sphere:

> An interesting coincidence, yes/no? that what Western culture has tended to label feminine (forms characterized by silence, empty and full; multiple, associative, nonhierarchical logics; open and materially contingent processes, etc.) may well be more relevant to the complex reality we are coming to see as our world than the narrowly hierarchical logics that produced the rationalist dreamwork of civilization and its misogynist discontents (qtd in Page 9).

In this context, feminist thinking is at one with digital narrative of all kinds for these are its primary concerns as well. The literary fringe of the new media is steeped in indeterminacy; leading critics use titles for their articles like "Making Nothing Happen" (Moulthrop), "How Do I Stop This Thing?" (Douglas), and "Beyond Next Before You Once Again" (Joyce). Digital narrative as a literary form is potentially inexhaustible from a browser's perspective (Douglas, 1994, 164) existing as it does in a perpetual state of potentiality—poised for flight. Add a feminist agenda to this mix and electronic narrative becomes an intensely subversive political tool for speaking social criticism, for, as Patricia Seaman says in her hypertextual tribute to Kathy Acker, "Requiem for Pussy": "Every position of desire, no matter how small, is capable of putting to question the established order of a society" (13).

Following on a tradition of open-ended women's writing, including Gertrude Stein, Virginia Woolf, Djuna Barnes, Jane Bowles, Anaïs Nin, Christine Brooke-Rose, Carole Maso, Carla Harryman, Susan Howe, Lyn Hejinian, Nicole Brossard, Gail Scott and Kathy Acker, contemporary feminist new media writers are implicitly weaving the language of feminist theory and social critique into their oppositional, textual ecosystems. Monique Wittig has observed the overwhelming din of patriarchal discourse's metanarratives "produces a confusing static for the oppressed, which makes them lose sight of the material cause of their oppression and plunges them into a kind of ahistoric vacuum" (Wittig 22). This same 'confusing static' of discourses is the chosen weapon made explicitly vocal in the hum of the narrative machinery behind social, virtual, textual space. Competing, conflicting, subverted mainstream discourses are turned, twisted, spun, blown up and torn inside out by women authors to speak feminist archival forms with synaesthesia's sting.

It might be argued that archival narrative cannot exist as a truly feminist space or as an independent system in its own right outside of authoritarian discourse because the author defines the play of the electronic text as a whole. To a certain extent this is true, but a wholly random artwork is also untenable: it would unravel into nonsense. Each feminist text is built on its own system, its interface an organic process and a unique framework, with the narrative guided by its own individual structure of associational logic. In the feminist new media, the reader plays a far greater role than in traditional paper-bound literary works because of the unique way digital text privileges subjectivity by drawing the browser in as a part of the system, through the browser's leap of faith in selecting each link. This act of browsing is an empowering process. Michael Joyce says that "Capturing the flow..., channeling it, the reader turns the text to distinctive uses of her own, which she can float upon or navigate through. She begins to voyage, both in space and for space" (Joyce, 1995, 245). The fluidity of this kind of reading may seem random to the reader until she has encountered enough of the networked text to map it in her own mind. As well, the more densely constructed an archival text is, the more random the experience of an initial voyage. In Shelley Jackson's *Patchwork Girl,* no matter where we begin we are plunged directly into the monster's or Mary Shelley's or Jackson's stories: journals, theoretical reflections, conversations with Jacques Derrida, conversations with the long-dead owners of the monster's original body parts and on and on. In M.D. Coverley's *Califia,* after a brief introduction that tells us we are on a quest for gold, we must choose a direction for our journey and are immediately immersed in a host of names, time periods and narrational voices. In Diana Reed Slattery's *Glide,* we must learn the language of Glide in order to understand the sensory nature of the Lily-mind and to navigate the maze game itself. Excess choice leads to freefall—or nomadic voyaging—through the narrative spaces. The result of this random function is a sense of dislocation in space, time and language. It is a celebration of Hayles' state of maximum information on a sensory plane.

The disorienting intersection of text and image—"a stop the mind makes between uncertainties" (Barnes 111)—is a new language, and it is what Marshall McLuhan called "the next logical step": "not to translate, but to by-pass languages" to arrive at a state of "weightlessness" and "speechlessness" (1964, 84). This is what Umberto Eco calls "work in movement" (qtd in Joyce, 1991, 83) and this is the space of the systemic *chora*. This is an embodiment of Deleuze and Guattari's trademark, postmodern schizophrenia and it is Frederic Jameson's rupture of spatial-temporal continuity. New media author Carolyn Guyer calls the modern sense of creative dislocation "being split among places" or a "buzz-daze" ("Buzz-Daze"). But where the postmodern condition is alienating and dislocating, archival space is inclusive and intimate. It draws the reader in as a key element in the text through *connections* in space and, because the new media recreate this state on more intimate terms, it invites a weightless or a nomadic association rather than a homeless, disconnected one. We choose to meander and explore over and under and inside and around the rooms of an archival text. Following the trails of nomadic logic, we choose to get lost.

Like cyberfeminist Rosi Braidotti who chooses to be what she calls a 'nomadic subject' because she sees it as a way of "blurring boundaries without burning bridges" (4), feminist digital narratives are elaborate, multidimensional architectural (and therefore mnemonic) spaces woven of subversive linkages. Part of this subversion lies in the way that the archival text requires rereading. It is in revisiting a particular narrative that the hyperlink most effectively undermines and subverts our memory of the text. Hayles says:

> Rereading is...a reshaping, a reconfiguration that changes what the text means precisely because what it means has already been established in the reader's mind. Rereading unsettles as much as it settles, an insight further emphasizing the exfoliating multiplicity of hypertext narrative. Given this multiplicity, it is not surprising that hypertext narrative also leads to a different sense of time than one that follows a more straight-forwardly linear progression (1997, 574).

Rereading—or revisioning—exposes our earlier memory of and assumptions about the text and, by doing so, resituates us in place, time and space. Michael Joyce sees rereading as actually forming another space in the continuum of the text, a theoretical one (1997, 582). Such are the facets of the form: the reader not only becomes a part of the text, but the act of (re)reading itself does too. This is molecular narrative at its most complex. This is an inhabited space that casts shadows.

The altered sense of the temporal and the spatial is the metatext of our reading, for the cultural memory of feminist electronic space is innately metatextual. It remediates itself. The more the text emphasizes our own displaced visual orientation, dislocation in time, and our sense of information overload, the more we are aware of the flesh and the bones and the particular cells of the narrative's complementarities in mnemonic space. This is integral to a genre that proposes to undertake social critique. In fact, Stuart Moulthrop sees the subversive potential of hypertext as being embodied in its inherent sense of (technological) rupture and breakdown that self-consciously exposes political agendas and forces us to question our own assumptions (Moulthrop, 1997, 665). Or, as Faith Wilding says, "We must keep creating and reinterpreting our histories to encompass new conditions, new technologies, [and] new strategies" ("Cyberfems 1").

Read on. The rest of this work will explore three 'shapes' inherent to the form of the new media in three overlapping webs or chapters: **the Matrix** or the space-time network of the electronic text as much as of systems of knowledge, **the Unfold**, an infinitely expandable space born at the site and moment of the rupture between a mathematical equation for defining infinite complexity and intrinsic dimensions, and an event that the browser's body enacts as she performs the space of the text, and **the Knot**, a multidimensional topology that spans all dimensions. More specifically, in Chapter 2, I undertake explorations of the matrices of information overload and quantisation and their implications for feminist lines of sight, temporal orientation, structural agency, and fractal subjectivities in the navigation of the information glut of fictional architectures in *Patchwork Girl, Califia* and *Glide* where memory and forgetting are the compasses we must steer by. Chapter 3 unfolds as a study of immersion and quantum interference in these three authors' works and of how, through the engagement of the senses in choric space, these elements are at its heart re-examinations of issues of embodiment and a rewriting of colonized or enclosed bodies and patriarchal forms of history. In Chapter 4, I will investigate the tangled knots of disorientation and spatio-temporal dislocation evident in Jackson, Coverley and Slattery's entangled new media environments and how they toy with the memory spaces embodied in the nomadologies of browsers and the wanderlust of the desiring subject in a continuous present tense. Chapter 5, a conclusion with no conclusions, will examine possible futures and modalities, and the irreducible shapes they might take.

2. The Matrix: Information Overload

i. Temporal Perspectives on Information Culture

"History is a machine going nowhere." – Hasso Krull

"Technology so advanced it cuts time." – John Deere advertisement

Time has traditionally been viewed as an arrow that has a more or less linear trajectory. We progress or evolve from past to present to future. Where Newtonian time was absolute, composed of infinitely divisible intervals or spaces in time that were infinitely repeatable, quantum theory introduces the concept of 'reversible time.' Reversible time means that an equation can describe a body's motions bi-directionally, moving both backwards and forwards from the present moment. Peggy Phalen notes in the context of theatrical performance that absolute repetition is simply not possible and that reversible time as a result is a fraught concept (127). Representation can never perfectly reproduce the real, she argues; there is always a gap between them. Similarly, Judith Butler says, "the real is positioned both before and after its representation; and representation becomes a moment of the reproduction and consolidation of the real" (qtd in Phalen 2). Physicist Ilya Prigogine expanded the perspective of quantum mechanics in the same way, arguing that not only is time *not* reversible, but the repetition of an event—what he calls the 'second time' of an event—is always a new and unique occurrence (Phalen 127). We can return to the same moment, but it is always a re-visitation, and our experience is different because it is informed by our memory. A second time is not only, therefore, irreversible, but an additive structure (Phalen 127). Phalen says:

> It is this "additive" notion of time as opposed to an evolutionary model Prigogine and his colleagues believe may lead to a discovery of a "second time." If such a time were observable, then time may not be a neutral "constant" in the universe. Time itself may be a dissipating structure exhibiting significant fluctuations which correspond to a principle of order that is not entropic. (Phalen 127)

If time is evaporating as Prigogine believes then we, like the universe, may also be running down. But, there is another possibility as evidenced by our cultural fascination with temporal increments. We in our present moment and position in space may be the only constant in what Paul Virilio dubs a 'temporal point of view' (1991a, 83). Time may be unfolding. Time may be expanding outward and in actuality be infinitely expandable like the intrinsic dimensions of the universe itself—or the networked text. The 'second time' of the digital text is the time of our passage and our re-turns in narrative space. The times of memory, re-membering, and forgetting—the record of our journey and the absence of any tangible signs of our presence—are far more circuitous than arrows of the past too and unfold in infinitesimal but not inconsequential increments in information space as well.

Time is a contested territory in the first few small moments of the new millennium. Where the 19th century sought to visualize it, to capture it in motion on film and the 20th century to spatialize it, to gridlock it, and measure it in the smallest increments possible, the 21st century, with its accelerated rate, is taking the project of spatializing the temporal to new depths as it completes its morph from simultaneity to instantaneity. Simultaneity was the timeframe of the shutter click; instantaneity is the temporal nano-measure of a hyperlinked mouse click. Theorist Michel de Certeau sees this latter quality as being inherent to spatial practices in 'place,' which he defines as a self-governing system composed of "an instantaneous configuration of positions" (117). Such is our contemporary place as we move around in the structural interiorities[20] of the temporal dimension in business, in culture and in fictional space. Western society is merchandising the small moments of time by attempting to turn them into commodities or commercialized objects. In the acceleration of the present moment that is our cultural trademark, downtime or idle time has become an enemy to be eradicated and an object to be sold. It is possible, for instance, to loan your unused computer cycles to SETI as additional computing power to help in the analysis of telescope data in the quest for extraterrestrial life. In England, Richard Wright's 'Bank of Time' will keep track of your idle computer minutes for you, saving them in its database. The Bank then revisualizes those minutes as screensaver plants (which grow via time lapsed photography), and ranks corporations according to the most time wasted by their employees (Wright). As all available time is now counted and accounted for and the space of the present moment continues to expand under deepening drifts of data, memory increasingly becomes a cultural obsession.

Information overload is a given in contemporary, technologized society where the cultural norm is the continuous long play of the feedback loop, 'reality' programming and the obsessive all-seeing eye of surveillance. Archives proliferate. Everything informational is stored. A totality of data is recorded and preserved for posterity as part of this entropic and bottlenecked data glut. Science and industry and surveillance cams callously record any available data as a symptom of what Paul Virilio calls "the endocolonization of a world without intimacy… a world which has become alien and obscene, entirely given over to information technologies and the over-exposure of detail" (Virilio, 2000, 57). Where is art in this swell of information? Lynda Morris argues that prior to the age of reproducible artworks, the function of art had always been as a mnemonic marker of the passage of time outside of the commercial sphere\, whereas "the 'productive' time of capitalism" is "a form of time which serves to erase memory and differentiation" (qtd in Fuller n.p.), driving us to buy ever newer and 'better' commodities. Capitalism, as the harbinger of transitory taste, wants us to live fast and occupy a space of forgetfulness. The new digital technologies, while simultaneously being commodities themselves and buying into the grasping myth of the need for newer and bigger and better, are changing our relationship to both time and memory. Creating a space for documenting the ever-shifting nature of memory is becoming a more highly valued commodity than time itself (Fuller n.p.). The artworks of electronic culture reflect and address these concerns directly, particularly in terms of issues of mnemonic storage and information overload anxiety.[21]

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[20] The variable architectures—liquid or TransArchitectures—of space-time interiorities and exteriorities will be discussed in Chapter 3.

Where the avant-garde of the 20th century was most concerned with art as an object of study according to Jean-François Lyotard, Eric Kluitenberg believes that in the media age the new arts—called the Avant-Pop by Mark America—are most concerned with technology as a subject and with their own interface as a mnemonic form (Kluitenberg, 2002, n.p.). New technologies call for new structures and the shape of art interpolated by information is a radical re-envisioning of a matrix as the foundational form of the new age.[22] This shape is emergent in every area of study and every field. If one looks at ecology, immunology, astronomy or multinational capital, the matrix is *the* emergent paradigm, but it is only in the arts that the nature of this shape itself is being interrogated. The most apparent structural refiguration in this revolution by the new media arts is the birth of a new visual perspective necessary for navigating the deluge of information in the spatial networks of virtuality. Perspective is a technology or tool for mapping an idealized relationship between our vision, our perception and an object in the distance. What too is memory if not an interior place in space with an ideal perspective on the temporal—past, present or future? Where traditional, linear perspective required a stationary viewer, the multiversal or quantum perspective of the network, like the quantum of action, assumes a spectator who looks everywhere at once, assumes a spectator both situated and in motion. This is, of course, a more realistic reading of our place and situation in the world than Quattrocentro perspective. Even Maurice Merleau-Ponty observed in his opus *Phenomenology of Perception* that our perception of our world is dynamic, with change presupposing a situation and time presupposing perspective (411). In the matrices of the archival text, time too has shifted to become part of spatialized perspective, foregrounding temporal structure and contingency as the defining qualities of the work. From their own unique viewpoints, Walter Ong, Marshall McLuhan, and Vilém Flusser have all documented the visual and discursive revolutions, the paradigm shift, that Western civilization is undergoing as a result of technological change. This shift is not just temporal, but technological as well. In another age, literacy and the printed book in particular marked a transition from oral to written culture that wholly transformed human consciousness. The book imposed temporality on the word, Ong argues, making it appear to be finite and making words seem to be authoritative. The author within such a technological framework of information dissemination became a monolithic authority, a construct, whose power was indisputable within the concrete space of the printed page. This shift away from orality led to the birth of history and the sciences, codification, classification, hierarchies and other linear methods of ordering knowledge. The electronic media, however, have changed these concerns emphatically. Birthing Ong's secondary orality, they have moved us out of a mindframe that contained our thoughts, have burst the bindings on the monolithic book and binary forms of thinking, and have come to allow us to experience a new structuring of our attention: a new kind of listening. This new attention is an embodiment of McLuhan's view of media as the 'extensions of man': an externalization of the senses—his uttering or outering of all of the senses at once—that the electronic media have wrought on us and on our bodies. Vilém Flusser, a German communications theorist and member of the Frankfurt School, identifies this paradigm shift as the 'end' of history. More tempered in his views than McLuhan, Flusser believes that, as children of the digital age, we are entering an era of what he calls 'post-history'—for, history as a science was born of writing. This new visual—and highly self-conscious—form of history is what he calls 'unimaginable' in

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[21] We might well align information anxiety with castration anxiety and other dangers of being powerless without a clear trajectory for action and escape. Chaos is traditionally gendered female and seen as a passive state. Likewise, under modernism, the city was seen as female and threatening (hence, the male *flâneur* as an answer to the new urban space). Critic Frederic Jameson "writes of 'the horror of multiplicity', of 'all the web threads flung out behind my 'situation' into the unimaginable synchronicity of other people" (qtd in Massey 259).

[22] As Jay David Bolter and Richard Grusin have noted, this remediation is reciprocal: old structures and media are altered by the presence of the new as well.

1983 and what we might call 'multimedia' or 'interactive' or 'multiversal' or 'spatialized' or 'informational' two decades later.[23]

Living in the shadow of the Information Age (as Marshall McLuhan dubbed our current era) memory gets stored spatially rather than being written, and information, like time, is largely invisible to us—it has acquired a kind of transparency. Like language or sight, information is both a given and an undifferentiated force whose presence is rarely problematized or scrutinized. What is information? It might be useful at the outset to re-examine two words that are often erroneously used interchangeably with information: knowledge and data. Knowledge is information that we have learned, skills or facts we know and can apply. Knowledge is application. Data is quite different; it is the machine language we use to talk to computers, and the language with which they talk to themselves and each other. Any data they produce must be interpreted and transcoded—or processed—into information.[24] Claude Shannon, an engineer working for Bell Labs in the 1940s, originally construed information, unlike knowledge and data, as something that was transparent and meaningless.[25] It was literally a separation of meaning and message. Information is a social matrix or network incorporating all perspectives and linking, in essence, all subjectivities; it is how we communicate with each other in an age of broad-sweeping technological mediation, and how we move through such an information space as subjects is what defines the environment's shape. In "A White Paper on Information," Matt Kirschenbaum argues that, despite Shannon's original formula, information has in fact come to acquire meaning. Even Norbert Wiener, the father of cybernetics, argued that information was a 'pattern of organization' and Kirschenbaum says that information has become aestheticized and has assumed a recognizable form. Data is now visualized in identifiable structures and shapes: "at precisely the moment data becomes invested with visual form as information, so too does it assume a cloak of representational artifice, thus taking its place in the multifaceted media array that has defined the popular contexts of the Information Age" (Kirschenbaum I). Furthermore, Kirschenbaum believes that information has come to be embodied *as* contemporary culture: advertising, television, film, the WWW and the digital arts (II). Clearly the new electronic forms like hypertext and hypermedia are shouldering a large portion of the paradigm of cultural representation and can help us gain perspective on the breakneck change and crushing burden of information that is piling up around us.

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[23] See Wilson and Ströhl. This is also the domain of Jacques Derrida's 'archi-writing' or '*différance.*' I will discuss this in the next chapter.

[24] Where Ezra Pound and John Cage would have added 'understanding' to this tryptich, I will examine 'embodied knowledge' (à la Hayles) as the final element in this quartet in Chapter 3, section ii.

[25] Information could also be said to represent absolute meaning. In Montreal composer Kathy Kennedy's "Cell Phone Ballet", a performance of eight electronically interconnected singers on phones, it is significant that the messages transmitted are numerical. The numbers stand in for all possible communication (Kennedy n.p.).

How we move through information space, particularly in the network of the electronic novel, is what defines its meanings, connections and dimensions, for, connectivity and context are what make information valuable once it fulfills its role as a medium of exchange and is applied as (embodied) knowledge, or transcoded into data. It is especially significant how radically our conception of information alters once it becomes something that we can visualize, something aestheticized, something that we can move through and navigate via links in electronic spaces, rather than something whose arrival we passively await. Shannon's idea of information was an attempt to quantify a scientific theory and lay the foundation for a new technology of communication. He defined 'information' as "a function of probability" by defining it in relational terms (Hayles, 1987, 24). Sidestepping the complexities of quantifying information through its internal differences to other possible messages, rather than through its external context, he worked from the assumption that the information content was constant (Hayles, 1987, 25): "Thus the first, and perhaps the most crucial, move in the information revolution was to separate text from context. Without this stratagem, information technology as we know it could not have come into being" (Hayles, 1987, 25). Shannon separated text from context (and from all ties to situatedness or historicity) by defining it as a probability function, and over time information has come to be measured in bits. A bit is like a particle: it is the smallest unit of information possible—even its name is foreshortened, from binary digit—and the mode of its storage. Nicholas Negroponte describes it this way: "A bit has no color, size, or weight, and it can travel at the speed of light. It is the smallest atomic element in the DNA of information. It is a state of being: on or off, true or false, up or down, in or out, black or white. For practical purposes we consider a bit to be a 1 or a 0. The meaning of the 1 or the 0 is a separate matter" (14). While the speedy bit's ontology may always be in a state of flux, its instantaneous transmission is independent of the content of the message. This separation of meaning and content in the informational landscape is the trademark of the latest information revolution. I say latest because each time a technology or new media has transformed Western society it has wrought a paradigm shift of immense proportions.

According to Irving Fang, this last revolution is the sixth Western culture has undergone.[26] The first was marked by the invention of writing, which separated speech from print. The second was the invention of the printing press with its moveable type—the first assembly line of sorts; it was the first use of automation in the production of culture. The third revolution came about with the advent of the mass media in the wake of an urban population shift; it was characterized by the introduction of the penny press, automation, the mails, photography, the telegraph, wire services, radio and movies. Entertainment as an industry was the hallmark of the fourth revolution that saw the birth of arts for leisure time, magazines, novels, the phonograph, broadcasting, personal cameras, narratives in film, drive-ins and television. The fifth revolution, Fang says, came about with the shift of the media into the home, introducing home mail delivery, home phones, records, cable, audio and video tape players, and home recording. The sixth—the emergence of the Information Age—is underway now: the ongoing transition from an analog to an object-oriented, image-mapped network culture that has arisen from the personal computer. It brings with it the concepts of choice and interactivity. It generates personalized media: faxes, cell phones, email, chat, home shopping and pay-per-view TV, the internet, net.art, the World Wide Web, multi- and hypermedia, web.art, teleconferencing, and virtual and augmented realities.

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[26] In *Connected Intelligence* media theorist Derrick de Kerckhove, seeing the technological periods and changes a bit more simply than Fang, identifies five

With the sixth revolution, information and the media are becoming increasingly fragmented, modular and dense, and the information/content divide continues to widen. In *The Mathematical Theory of Communication* published by Shannon and Warren Weaver[27] in 1949, information is designated wholly devoid of content and entirely dependent on the individual receiver as a transcoder of meaning. This situates information firmly within the frame of subjectivity—subject to interpretation. Furthermore, the denser the information—what we think of as a continuum from 'no information' moving toward 'information overload'—the lesser the ability to communicate. This excess density is what we call noise or unintelligible information

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revolutions in information processing: 1. alphabetic writing; 2. the printing press; 3. radio and television; 4. computers; 5. interactive media, including hypertext and the World Wide Web. (1997, 80).

[27] To put Shannon and Weaver's work in context (and of particular interest to literary scholars), it is interesting to note that in *Structural Anthropology*, Claude Lévi-Strauss states that three books—Shannon and Weaver's *Mathematical Theory of Communication*, Norbert Wiener's *Cybernetics* and John von Neumann and Oskar Morgenstern's *Theory of Games and Economic Behaviour*—formed the mathematical foundation for Ferdinand de Saussure's theory of semiology (qtd in Lowe 120-121). All authors of systems, Shannon and Weaver founded information science, Wiener cybernetics, and von Neumann designed and built the first digital computer.

instead of communication. Being bombarded by information in the guise of J.G. Ballard's "invisible literature"[28]—what he calls "the paper trail of the Information Age, which comprises 'market research reports, pharmaceutical company house magazines, the promotional copy for a new high-energy breakfast food, journals such as Psychological Abstracts and the Italian automobile magazine Style Auto, the internal memoranda of TV company planning departments, sex manuals, [and] medical textbooks such as the extraordinary Crash Injuries'" (qtd in Dery, n.p.)—means we must sift through increasing levels of redundancy in order to successfully locate meaning in the wealth of material. Too much redundancy—too much noise—and we are no longer able to understand, while the greater the information content, the more successful the communication. Similarly, noise is subjective: one person's noise is another's music.[29] Jargon and cultural affiliation can render meaning (even in our mother tongue) either transparent or opaque. Communication is a complicated web of networked relations. In conversation, most of what we communicate is nonverbal. Similarly, in the new media most information is dynamic, sensory, extra-textual and visual. This shift to an increasingly visual culture and visual mode of speaking is a part of the transformation apparent in the matrices of literatures of virtuality.

Sociologist Christopher Jenks has observed that vision is both a social and a cultural process, and technology—from microscopes to telescopes, spectacles to specula, cameras to computers—has long helped mediate the way we see. Where Simonides and Aristotle saw the importance of powers of visualization in how we shape our world and our memories, now we can understand that what we see and how we see are part of an interconnected system of a 'discourse network', the linguistic frame of our mediated age. 'Discourse network' is a term coined by German communications theorist Friedrich

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[28] In *A User's Guide to the Millennium* (New York: Picador USA, 1996), J.G. Ballard observes that "one day in the near future, anthologies of 20th century inter-office memos" will be "as treasured as the correspondence of Virginia Woolf and T.S. Eliot (76)" (qtd in Dery, n.p.).

[29] Noise is a territory that has frequently been explored by the musical avant-garde, from the Futurists to John Cage to contemporary Japanese noise music. See Paul Hegarty's "Full With Noise" for an in-depth exploration of its parameters and theoretical concerns. Hegarty also argues, after Theodor Adorno, that noise is by its very nature 'unnatural' or mechanical, literally existing outside of nature, and cultural, falling outside of the accepted and expected parameters for music. Noise as music is immersive: it "becomes ambience not as you learn how to listen, or when you accept its refusal to settle, but when you are not longer in a position to accept or deny" (Hegarty n.p.). Like the new quantum perspectives, noise requires us to hear in all directions at once.

Kittler to describe the connective structure of a technological society. Derived from poststructuralist thought, it is a map of the technology of culture, an intricate system of rules and codes that govern an historical epoch. This noisy matrix is also the defining parameter for the limits of everything that can be said and thought—and remembered—within a particular time period. Our vision, as much as our belief system, is formed by our historical perspective, our concepts of knowledge, our political structures of power and our systems of desire (Jenks "frontispiece" i) Where the vision of modernity sought to unify parts into whole systems, postmodernity finds its meaning in the sightlines between the quantized fragments and gaps of a networked system, in the converging trajectories of noise. Under postmodernism the system no longer means, but in the digital realm the innumerable connections between the gaps speak volumes.

Vision embodies a particularly insidious and virulent bias of Western culture. From Pharaoh's all-seeing eye positioned at the top of the pyramid to Jeremy Bentham and Michel Foucault's unblinking panopticons, the owner of the gaze has historically been the purveyor of power in the political system (Jenks 15; Walker and Chaplin 19).[30] Martin Jay in *Downcast Eyes* argues that the foremost conception of vision in the west has been as a purveyor of knowledge: knowledge calls for "an immaterial vision, understood not as sight of the eyeballs but rather 'as the allegedly pure sight of perfect and immobile forms with 'the eye of the mind'" (qtd in Wysocki, "Monitoring Order" 3). Wysocki argues that academic and philosophical tracts arose from the 'seeing-through' vision Jay posited; however, it was the alphabet that initially made room for immaterial vision. Literacy and aesthetic appeal are antithetical, but there is a one to one correlation between the simplicity of an alphabet and its effectiveness as a means of dominant enculturation: "a page … should, in the famous words of one book designer, stand to its thought as a fine crystal goblet stands to the wine it contains." (Lanham 4).[31] This tension between aesthetics and content, and information and knowledge is what contemporary visual culture is exploring and exploiting. According to Wysocki, "the first kind of seeing and what it is meant to see—a 'pure sight of perfect and immobile forms' as [Martin] Jay put it…—thus connects with a writing, and eventually a printing and book pages, that are to be as invisible, as transparent, as possible" (Wysocki). This raises the question that if aesthetics interfere with meaning, then how does the aestheticization of information and its spaces alter the messages being conveyed and the memories that we retain like after-images on our retinas?

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[30] In Slattery's novel *The Maze Game* being subjected to the Gaze is literally a fate worse than death:

> Being put Under the Gaze was the ultimate punishment. Every Lifer on every level was given access to you and could watch your every move. Your scorecard told you how many were gazing you at any given moment. You heard their comments. Felt their eyes. It caused a madness incurable by the I-Virus. The final stage was a catatonic trance—total withdrawal inward. (i. 3.6-7).

[31] For further explorations of transparency in typography and book design, see Anne Wysocki's "Monitoring Order" and Johanna Drucker's *Visible Word.*

In medieval terms and in Gutenberg's time, the printing press sought to translate the visual knowledge of the *ars memoria* into a reproducible form (McLuhan, 1962, 159) and the advancement of logic toward the digital age preference for "quantification mean[t] the translation of non-visual relations and realities into visual terms, a procedure inherent in the phonetic alphabet" (McLuhan, 1962, 160). The alphabet thereby became a means for transcoding the predominant visual culture, for "translat[ing] speech into a visual code" so easily transported that its wide dissemination seems, in retrospect, almost inevitable (McLuhan, 1962, 160), but it was the advent of information in its time and turn that freed text from context, rendering it in its own visual terms. The uniformity of the alphabet both breeds and silences dissent, becoming the chief weapon of religion, empire and cultural domination, and the germ for the (allegedly) monolithic subject inherent in the cult of authorship.

Of course, we have come full circle now in an information age and, as in the era predating the printing press, the eye and the image are once again privileged above the word. Advertising, the primary disseminator of information in our time, is "designed to arrest the gaze and capture attention" (Virilio, 2000, 44). The monolithic subject, unary perspective and authoritative authorial gaze are harshly critiqued and, losing their primacy, may perhaps be withering into obscurity. Feminist film theorists are one group who have challenged the gaze as a patriarchal weapon that enacts women's (and other outsider groups') objectification and oppression. Laura Mulvey argues that the male gaze structures the psychology of mainstream Hollywood cinema and that the angle of the camera genders the gaze to create visual pleasure. In other words, films have traditionally been created for male viewers, for male audiences. Viewers cannot see what they want to see—instead the gaze is directed or prescribed by the camera itself. A narrative follows the fate of the hero, forcing us to see everything through his eyes, and transforming the act of looking into the violation of voyeurism. Like visual perspective, the cinematic gaze: "is an ideal view, imagined as being seen by a one-eyed, motionless person who is clearly detached from what he sees. It makes a god of the spectator, who becomes the person on whom the whole world converges, the Unmoved Onlooker. Perspective gathers the visual facts and stabilizes them; it makes of them a unified field" (Hughes, 1991, 17). Scientific technology has also frozen the gaze into a state of clinical detachment, and the look of both the artist and scientist have been entirely co-opted, according to Virilio, by the technologies of capitalist blindness, a legacy of "the combined industrialization of perception and information" (Virilio, 2000, 57). The resulting 'cold perception' of the scientific gaze has been aestheticized, normalized and peddled as a commodity in its own right (Virilio, 2000, 57). The power of the gaze derives from looking at an object who is unaware of the scrutiny, and women within the visual medium are thereby reduced to objects to be looked at, translated into fetish objects. To combat the translation of female subject into object, feminist radicals among others strove to create a 'visibility politics' in the 1970s and 80s (Phalen 6). Inscribing gender, class, race and queerness as markers of difference, they wore their chosen identity, or identifiers at least, as a statement of their right to political power. Such a performative stance, "an ideology of the visible," not only erases ambiguity, difference and imposes a new kind of limited subjectivity in place of the all-seeing eye of surveillance (Phalen 7), but it also fails to garner representational or economic power. As Peggy Phalen has observed, "If representational visibility equals power, then almost-naked young white women would be running Western culture" (10).

An alternate model that reclaims vision for its owner is the *flâneur* (who I will transgender female for our purposes here). Charles Baudelaire's *flâneur* is by definition male. As with the masculine-only gaze engendered by Hollywood cinema, a *flâneuse* would have been inconceivable (and for a woman to assume a male gaze, to turn the lens back on herself, has implications for her seeing her own body and self as an objectified image). Doreen Massey says:

> the notion of a *flâneuse* is impossible precisely because of the one-way-ness and the directionality of the gaze. *Flâneurs* observed others; they were not observed themselves. And, for reasons which link together the debate on perspective and the spatial organization of painting, and most women's exclusion from the public sphere, the modern gaze belonged (belongs?) to men (Massey 234).

Similar to the browser, the female *flâneur* begins to shift her own balance of power, reappropriating the gaze for personal (and urban) space, subjective time and private narrative. In cyberfeminist space, the gaze belongs to the browser and it is she who is in control of her own movement, direction and shifting orientation in space and time.[32] Similarly, just as the browser reclaims vision for the feminist *flâneur*, so the subaltern reclaims voice for the oppressed. The only audible means for the subjugated subaltern—by definition voiceless—to achieve consciousness and make herself heard is through transgression or an act of defiance (Das 312-313). Under such a system, speaking out becomes an obscenity. In other words, it is only possible for the subaltern to assume a subject position through the agency of the obscene. Hélène Cixous has observed that for writers such a transgressive act involves "relinquishing all the lies that have helped us live" (37). The archival narratives of the feminist electronic novel seek to reclaim voice like vision in just such a way, allowing what was once unspeakable and invisible in its own place and time to become audible and visible.

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[32] Doreen Massey in her work *Space, Place and Gender* explores how the gaze was altered and resituated in paintings by women. Drawing away from the cold eye of authority, they tended to try to pull the viewer into the space of the picture and emphasized senses beyond the visual (235-6). We might see these as early explorations of the concepts we find later in Baroque art and immersive environments.

This very invisibility of women's viewpoints has been extended to the groundless claim that there have been no great women artists. Where women's perspectives are devalued or unvalued, her art and alternative points of view in that art have also been erased from traditional histories. It is in the excavations of the sediments of amnesia that her artworks have been rediscovered, and her different perspectives etched. Stories of the women who were barred from creating art, who went mad at the inability to do so, or who, like the sculptor Camille Claudel, chose to destroy their work, rather than remain unacknowledged for it, abound in the annals of the art world. The right to possess her own gaze would not arrive for women in the realm of the visual arts until much later, but in the 19th century she came into her own in the memory spaces of the novel. It was in print that mnemotechnics first acquired a feminist aesthetic. The novel is a machinery of memory that invites in conflicting voices and perspectives. The realist novel strove to create a simulated version of reality where we might enter into a scene as into a room. Immersing ourselves in a narrator's perspective, however, looms dangerously close to being directed by the all-seeing gaze of the camera. It is in explorations of memory, subjectivity and the present moment that this unary viewpoint becomes fractured—becomes fractal—within the borders of the landscape of contemporary art and literature. Perspective must first be shattered before a feminist *flâneur* and a mnemotechnics can arise in the new media and be understood in context.

While "ocular-centrism" (Walker and Chaplin 15) is a trademark trait of the Western world, it also is a telling watermark for measuring major shifts in thought over time. Over the centuries, perspective in art has undergone a transition from the *representation* of medieval thought to the scientific *presentation* of the world in accurate detail to the *simulation* of multiple worlds in simultaneous times in virtual environments. In the 19th century, a new scientific perspective was born of the lens of an impartial eye which started to extend the sense of sight *technologically* through the use of optics, particularly photography, to extend the limits of the body through the technologies of speed, science and medicine, and started to gain an awareness of the dynamic nature of the temporal. The growing privileging of historical context in vision and in photographs produced a new awareness of time-in-space and connection, bringing dynamics, transformation, structure and totality to the fore (Lowe 11). This new 'dimension-in-time' meant that photography came to be viewed as an objective form capable of capturing 'truths.' Still photography exposed a new dimension to perspective that had previously been barely perceptible on canvas or in life to the human eye: time.

In the latter half of the 19th century simultaneously on both sides of the Atlantic the now famous still photos of movement—in America, Eadweard Muybridge's horses in motion and, in France, Jules-Étienne Marey's shots of the human gait—froze time for scientific study and exposed a whole new world (Gleick 58-60). Where space is something that is easily recognized, explored and understood, time is an artificial measure of our sensory realm. It is imperceptible, lacking a "dedicated sense", as Theodor Adorno observed, and is invisible to the human eye (Walker and Chaplin 27). Photography showed that the measure of a moment was every bit as complex as the depth of field revealed by the microscope and the telescope (Gleick 60)[33]. With the revelation of such complexity in the instant of a shutter click, perspective in art began to shift once more, this time to incorporate time-as-space into the newest cultural shape, into what will become the network.

The 20th century, ruled by multinational capital and shaped by electronic culture's new interfaces, had an expanded vision and new dimensions of industrial and informational noise. In *The History of Bourgeois Perception,* Donald Lowe states that in the modern era time and space lose their status as absolutes and, turning subjective, reveal a new epistemic order that is systemic and synchronic (11). I would argue that during this period space and time begin to merge on a perceptual level, as the temporal becomes spatialized, systematized and a/synchronous, and space becomes temporalized, digital and dynamic. This is where presentation loses its footing to a new way of looking (rather than gazing)—to the practice of simulation.[34] Theorist Ferdinand de Saussure also saw an arbitrary relationship between signifier and signified, and the union of space-time readily embraces such illegitimate connections, including entropy and chaos, pattern and randomness, signal and noise. This 'perceptual revolution' was the result of the fracturing of perspective into multiple viewing points in the early years of the 20th century. It creates a "new perceptual field" that is "'multiperspectival and environmental'" (Lowe 14) and where linear perspective comes to be replaced by the disorientation of navigation in simulated and multidimensional space.[35] It creates a new way of looking appropriate to the speed, shape and space of the network as it exists in the instantaneousness of now time. By uniting space and time within the framework of vision, it also takes the onus off the 'female' as the guilty chaotic element within a binary, devalued (by the patriarchy) spatial system. And, in fact, rather than privileging the temporal aspects of the system, Doreen Massey argues that time is an emergent property of a network's spatial dimensions (268).

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[33] André Malraux argues that photography itself in its first100 years underwent an evolution equivalent to the transformation in perspective in Western art from Giotto to the Baroque (Frank 156-157).

[34] Jean Baudrillard's concept of simulation will be explored in the next section of this chapter.

The most dramatic transformation in the transition from the 19th to the 20th century and on into the 21st is clearly this new awareness of time. In his monumental work *Discourse Networks 1800/1900,* Friedrich Kittler has identified time in 1800 as something that was fixed and immobile, unchanging, whereas by 1900 it had acquired the fluid properties of a subjectivity: "a fluctuating and expanding force that altered shape according to each situation" (Heumann n.p.). In *Matter and Memory* (1895), French philosopher Henri Bergson also saw the shift, objecting to how the scientific world isolated time from living, and instead proposed that the duration of experience, *durée,* should be kept distinct from clock time. For him, duration was the movement of memory, combined with consciousness and freedom, with memory being an archival gesture: "the conservation *and* preservation of the past in the present" (qtd in Deleuze, 1990, 51). Almost a century after Bergson, Gilles Deleuze in *Bergsonism* argues that the present moment is the only time—everything else is only memory. History might well be a machine going nowhere, but for Bergson (as in the Derridean archive) the present moment is always already divided in two directions and movements: forward-looking to the future and backward-looking to the past (Deleuze, 1990, 52). (For Deleuze, time will become a rhizomatic multiplicity or a multiverse of singularities in motion existing simultaneously across many times.)

In the transition from modernism to postmodernism and beyond, we get a further stage in the transformation of space-time perspectives with an even greater emphasis on the spatial construction of a present tense temporalized form, with shifts to simulated immersive spaces, to multiperspectival constructs, to fractured structures, to fragmentation, to form as the pre-eminent concern over content. Yet, it is under modernism, Malraux argues, that form as pure function becomes the value of art itself: "every great artist is a transformer of forms; the new fact was that the modern artist became aware of this, and whoever was aware of it formerly is modern in some way" (qtd in Frank 144). It is Malraux's contention that modernism's self-awareness was the product of the 19th century's newborn museum and the intellectualization of art that came with the advent of this new archival space: the museum sought to simulate the fluid structures of memory invested in cultural objects. As the 20th century schools of art (especially Cubism) exploded human figures out in many directions to capture the motion of perspective—surely as revolutionary a perspective as Giotto's introduction of a single ideal viewpoint on the tidal edge of the Renaissance—they united a montage of visual styles. In the desire to compress and interrogate time and space, Cubism depicted multiple perspectives, an assemblage of interior and exterior angles, simultaneously. As other art forms and media developed—modernism began to dismantle the novel and film arrived, notably first known as the *motion* picture, with the ability to document unmediated reality (or so Louis Lumière and others initially argued [Virilio, 2000, 28])—representation itself entered a crisis of its own, beginning to transform into mere presentation (Lowe 113) as the picture began to be replaced by the commodified image and the cold eye of technology. Painting experienced another shift, unhinging representation from content (now better simulated by the photograph), and expanded into a disorienting absence of perspective altogether. Abstract Expressionists chose to favour noise over pattern, rejecting representative art outright—just as Gertrude Stein had already done in her abstract writings. As the temporal media came into being, they also reworked perspective to incorporate the newest dimension, the continuous present moment (something Stein advocates for in her essay, "What are Masterpieces?"), or the spatialized dimension of time.

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[35] This shift is apparent even in psychological constructs of individual subjectivity. It too begins to fracture, splitting away from Sigmund Freud's subconscious self, to Bergson's five sensory aspects of subjectivity: 1. need-subjectivity (want); 2. brain-subjectivity (choice); 3. affection-subjectivity (pain); 4. recollection-subjectivity (the embodied mnemonic interval in space); 5. contraction-subjectivity (the embodied mnemonic interval in time), to the shift to make way for the new phenomenological interpretations of psychology such as Deleuze and Guattari's schizophrenic subject as emblematic of our age.

In 1895, the same year that the Lumière brothers first transferred motion to film, British writer H.G. Wells (1866-1946) identified time as a dimension with his novel *The Time Machine*, and proposed that time was a space we might learn to navigate and travel through (Gleick 53). In the decade following, Albert Einstein (1879-1955) devised his special theory of relativity, further complicating our conception of time by exploring it as a dimension subject to physical forces and having its own properties. French poet Paul Valéry (1871-1945) saw the first twitches of the temporal and spatial paradigm shift from linear, print-based constructs of art to multi-faceted aesthetic engagements with form and structure complete with all of the accompanying implications for altering the creative process through interactions with different technologies.[36] The novel too became increasingly preoccupied with the nature of time, from Gertrude Stein's (1874-1946) Cubist experiments dating from 1909, to May Sinclair (1863-1946), Dorothy Richardson (1873-1957) and Virginia Woolf's (1882-1941) stream-of-consciousness novels, Marcel Proust's (1871-1922) epic in subjectivity *A la recherché du temps perdu,* and James Joyce's *Ulysses* (1882-1941). Almost a hundred years later, we might be able to reread these texts—especially *Ulysses,* divided as it is into the hours of a single day, Stein's hypnotic repetitions, series and lists, and Woolf's poetic impressionist moments of duration—as explorations of not simply the continuous present moment and its sensory effects, but as studies of a precursor to 'real time'. 'Real time' is a foregrounding and spatialization of the present moment where it becomes a situated player in its own right with its own subjectivity in a work of art.

One of the great transformations in the field of visual arts in the first half of the twentieth century was the introduction of the temporal dimension as dynamic process into artistic technique. Where Modernist art lacked the 'movement' of "narrative" and ideas implicit in conceptual art (Walker and Chaplin 27), in the 1940s Jackson Pollock experimented with Action Painting, with process performed in real time. Privileging spontaneity and the aleatory nature of the creative act, it is this introduction of movement in real time in the 1940s and 1950s by Pollock and others that helped pave the way for other dynamic forms like Happenings, Installations, Events, interactive media and network culture that incorporate the assumption of a 'second time' or shifting perspective into their forms. From monocular Romanticism to Victorianism to Modernism to Postmodernism to Network Culture, there has been an increased splintering of the self and of subjective perspective(s). Art critic Clement Greenberg believes that Pollock's method was a way of introducing new visual vectors into oil on canvas: Pollock's goal was "to rotate his work out of the dimension of the pictorial object altogether and, by placing his canvases on the floor, to transform the whole project of art from making objects, in their increasingly reified form, to articulating the vectors that connect objects to subjects" (Krauss 26). In short, Pollock was drawing the viewer into his frame, was forging a connection between the eye and object being looked at. Greenberg also saw the potential in the new method for opening painting to a view "'beyond'" the frame, to a place beyond where it is possible to see within the work of art (Krauss 58) and into the matrix of the infinite. Modernist art critic Herbert Read sees non-objective art as "the creation of a 'new order of reality'" and "a crucial expression of the modern psyche" (Frank 173). Psychology, like science, the museum, visual art, and technology, has to have had a tremendous impact on how we see ourselves and our world. Contemporary physics, Read argues (and as will be discussed throughout this work), informs the "concrete representation of the elements of space and time" (Frank 175), just as art and subjectivities do.

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[36] Walter Benjamin quotes Valéry at length in his essay, "The Work of Art in the Age of Mechanical Reproduction":

> Our fine arts were developed, their types and uses were established, in times very different from the present, by men whose power of action upon things was insignificant in comparison with ours. But the amazing growth of our techniques, the adaptability and precision they have attained, the ideas and habits they are creating, make it a certainty that profound changes are impending in the ancient craft of the Beautiful. In all the arts there is a physical component which can no longer be considered or treated as it used to be, which cannot remain unaffected by our modern knowledge and power. For the last twenty years neither matter nor space nor time has been what it was from immemorial. We must expect great innovations to transform the entire technique of the arts, thereby affecting artistic invention itself and perhaps even bringing about an amazing change in our very notion of art. –Paul Valéry, *Pièces Sur L'Art,* "La Conquete de l'ubiquité," Paris (qtd in Benjamin 217).

Where the 19th century had given rise to the museum as a mnemonic contextualization of *objet d'art* in space and time, in the 20th century the museum and the gallery came to be seen as antithetical to the living practice of art as a dynamic process. Both show spaces were designed for the preservation of art as a static thing and tended to privilege hermetically-sealed mindsets that saw the work of art as fixed. By precluding time and movement, the gallery not only re-imposed the monolithic gaze of a singular subject, but also made the museum-goer a "silent witness" to the atrocities and desecrations of the cultural plunders of imperialism (Virilio, 2000, 46). In the 60s and 70s where political protest came to the fore in all areas of society, art like life came to demand live bodies and active participation rather than passive spectatorship. Arising out of their desire to experiment with objects in space, Allan Kaprow (b. 1927), Claes Oldenburg (b.1929) and Jim Dine (b. 1935) set out to create Environments and Happenings for the practice of art in real time. In an article on Jackson Pollock's legacy written in 1956, Kaprow argued that "the arena created by American action painting led artists first to [create] assemblages and ultimately to three-dimensional spaces, or Environments" (qtd in Reiss 8). Assemblages were generally small in scale and used objects that were intended to be handled; Environments incorporated the spectator's body in space in the present moment as a dynamic component of the work. This notion of "active spectator participation" in Kaprow's Environments gradually came to revolutionize art by eliminating the concept of audience in their spaces (Reiss 9). His works are pioneering experiments in interactivity. As the subjective experience of art as a praxis of engagement became more and more important, so the transitory nature of experience that survived only in a participant's memory (Reiss 34) was privileged over the archivability of the Environment itself. In fact, Kaprow, Oldenburg and Dine all used 'junk aesthetics', with disposable or perishable materials that were not salvageable after a showing (Reiss 21), underlining the short-term nature of the work.

As Kaprow's work developed, his Environments continued to privilege participatory interaction and gradually acquired theatrical elements. Not to be confused with theatre or performance art, these Happenings were improvised in the moment like children's imaginative play (Reiss 27). (Not insignificantly, Janet Murray in *Hamlet on the Holodeck* posits an ideal model for the new forms of interactive narrative that is also based on child's play.) More important to the realm of art was the very intangibility, or virtuality, of a Happening. It cannot be purchased, collected or archived for posterity (Reiss 28). Events persist only in the interiors of a viewer's memory like our experience of browsing an electronic text. Dick Higgins has defined Happenings as one of the 'intermedia' along with Conceptual Art, Mail Art, Fluxus (objects + cinema + performance), and Concrete Poetry, among others (Higgins). These are media that traverse boundaries between forms, including image and text and creator and interactor, and that as a result of embodying an ongoing principle of flux or movement are difficult to define or pin down. In just such a fashion, Kaprow's Environments were modular—particularly *Push and Pull: A Furniture Comedy for Hans Hoffman*—and traveled like components in a do-it-yourself kit. *Push and Pull* was composed of a sequence of instructions assembled according to the whims of the viewer:

> The visitors were invited to rearrange the furniture in the spaces. On the tour, Kaprow would not be involved at all with assembling the piece. Part of the point of the piece was that each exhibitor could do it differently, based on Kaprow's general instructions. Kaprow had sent a letter to all the exhibitors saying, "Each exhibitor has the right to set up the Environment-Happening or disregard it. Either he may do it himself or appoint some person to do it for him. … I am most interested in the handshake between the artist and others. The museum or gallery director can now be instrumental in bringing this about." (qtd in Reiss 31).

The museum's failure to embrace this aesthetic is evident in the fact that none of the museums that exhibited this work chose to construct an Environment from its component parts (Reiss 31) and the handshake, with the rise of the Internet, becomes the means of communication between networked computers rather than people.

Other parallels between Happenings and interactive fiction are apparent in their emphasis on the multiplicities of personalized subjective engagement. Environments privilege an emotional response and require a narrative reaction (Reiss 33), but only in the browser's memory is a record of the event in space and time retained. Environments, Happenings and interactive fiction also foreground spatialized time as a player. Passive looking must be abandoned for active and engaged playing in the present moment. Situation art is by definition temporal and it was inevitable that it soon moved out of gallery space altogether to become installed in natural environments. Rosalind Krauss states: "sculpture lived in a play of perspectives…where abstract geometries are constantly submitted to the definition of a sited vision.' The notion of a sited vision places emphasis on the beholders and their experience, or perspective, that is 'the activity of the viewer's relationship to his world'" (qtd in Reiss 62). Within such a shifting realm of multiple perspectives, it is ultimately the "spectator who becomes both the actor and observer of his own activity" (Reiss 63). This underlines the experience of the artwork as a subjective and metatextual one within the framework of organic or disposable art—where preservation by definition kills it, destroying the works' interactive components. The rooms of a museum are an antithetical show space for minimalist sculpture and situation-based art in real time, and, in these works, space becomes an "active ingredient, not simply to be represented but to be shaped and characterized by the artist and capable of involving and merging the view and art in a situation of greater scope and scale" (Reiss 96). According to Julie Reiss, Environments gradually grew into Happenings and Happenings morphed into site-specific Installations where "one now enters the interior space of the work of art" and "a set of conditions" becomes the artwork "rather than a finite object" (Reiss 96). If one is inside the work of art in the present moment, this raises the question whether it is possible to actually have a perspective on it. One can have a perspective on the interior space perhaps, but not on the work as a whole. Critic Clement Greenberg proposed a different view. He argued that a minimalist work (painting in particular) could never be truly two-dimensional because the first brushstroke created an "optical third dimension" that introduced depth (Krauss 29). His "'[o]pticality' was thus an entirely abstract, schematized version of the link that traditional perspective had formerly established between viewer and object, but one that now transcends the real parameters of measurable, physical space to express the purely projective powers of a preobjective level of sight: 'vision itself'" (Krauss 29). Once the gaze became measurable in infinitesimal increments, it also added movement in time to the work of art itself, creating "a perspectival rush of surfaces" that introduced the illusion of speed (Krauss 29). The look, the act of looking and the work of art thereby start to blend, and the opticality of the piece becomes inseparable from the visual engagement of the browser. It might even become, as Krauss argues, a medium in its own right (30).

Issues of foresight were being addressed not just on a material level in the art world. The 1960s saw attempts by museums to be more responsive to cultural memory and to its participants in order to shake themselves free of accusations of cultural imperialism and capitalist collusion. As a result in 1968 the Museum of Modern Art first opened its space to an interactive Installation by Robert Rauschenberg (b. 1925) with a voice- and sound-activated piece called *Soundings*. Their press release read: "Rauschenberg's requirement that the viewer participate in the creation of the work of art is a radical departure from the traditional relation between artist and audience… In *Soundings*, he insists that the viewer become his collaborator; without him the work does not exist" (qtd in Reiss 80). Without the participant's sounds to generate images, the piece remained an inert display of dull-finished, plexiglass panels. While we might equally say that an electronic novel does not exist without an interactor, in Rauschenberg's Installation, as in an electronic text, a whole cluster of concepts—including sound and noise, surface and volume, medium and non- or post-medium, perspective and viewing space—is challenged. For, as a collaborator, the space our body occupies in real time and the Installation, which is composed of this full space in time, come together, or, as curator Alan Heiss put it, "many artists today do not make self-contained masterpieces; do not want to and do not try to. Nor, are they for the most part interested in neutral spaces. Rather, their work includes the space it's in; embraces it, uses it. Viewing space becomes not frame but material" (qtd in Reiss 126). This charged space, the embodied architecture of the medium-that-is-not-one is the Environment of the minimalist.

The term minimalism was first applied to these kinds of works in 1965 by Richard Wollheim to identify the unformed content and the interaction of the 'beholder,' as the participant was dubbed. It has two main attributes: minimalism creates an architectural environment that privileges the space surrounding the components, and it requires audience interaction (Reiss 51). Sculpture in this style was celebrated for creating a Situation rather than a theatrical space, a Situation that demanded a response by the interactor in space and time. This is the utilization of a Baroque aesthetic that we see in Installation art, and in the electronic novel, and the dynamic nature of the artwork as the browser moves inside it is a trademark of minimalism. Site-specific art is by definition situated[37] or placed. While the art object occupies space and the browser enacts spatial practices, the place is, according to de Certeau, the structured and structuring system that is engendered by the interplay of spatial practices (Kaye 3): space "occurs as the effect produced by the operations [of the body] that orient it, situate it, temporalize it, and make it function in a polyvalent unity of conflictual programmes" (de Certeau 117). Space is in flux. It is always changing and "different and incompatible spaces may realize various possibilities of a single place"; however, " a single 'place' will be realized in successive, multiple and even irreconcilable spaces" (Kaye 5).

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[37] New media artwork is an ecosystem (as I explored in the opening chapter), and systems thinking is always already situated or "contextual" (Capra 30).

The paradoxical and dynamic nature of the experience of minimalism in the present moment troubles perspective or opticality in complicated ways. According to Donald Crimp, the site-specificity of the work displaces the "viewer's attention" toward the space "both she and the art occupy" (Kaye 2). In doing this, the minimalist work creates a meta-perspective, "a self-conscious perception in which the viewer confronts her own effort 'to locate, to place' the work and so her own acting out of the gallery's function as the place for viewing" (Kaye 2). The electronic text also performs precisely this effect in real time in virtual space—hence the hue and cry by its critics about the so-called confusing nature of the form.[38] Crimp argues that the truly radical effect of minimalism was not contained in its displacement of the subject as such, but in wedding the artwork to its environment (Kaye 2). This is a function of its overloaded collage attributes. Alternately, critic Michael Fried situates minimalism's importance closer to that of Happenings. He finds its key attributes in its ability to join situated objects with the beholder in space-time. The electronic text cannot exist without its browser either, but the new media arts take this attribute further. This coupling is literalized in the present moment in the electronic medium as the art, environment and browser become interwoven and interdependent components in virtual space. Minimalist art "questions its status as both sculpture and performance" (Kaye 3), just as the electronic text is not literature, art, Installation, sculpture or performance but some hybrid of all these things. Furthermore, not only is perspective situated in a self-reflexive context, in the ironic gap, but minimalism actually reflects and reverses the gaze of the browser, according to de Certeau, turning it back on the interactor herself in the here and now, and creating a mnemonic state of sensory overload (Kaye 7). In the site-specific artwork, either real or virtual, the work of art cannot be separated from the act of looking or the act of looking from the artwork because the encounter always must take place in real time (Kaye 30). Minimalist Robert Morris explains, "Our encounter with objects in space forces us to reflect on our selves, which can never become 'other,' which can never become objects for our external examination. In the domain of real space the subject-object dilemma can never be resolved" (qtd in Kaye 30). The more fractal our subjectivity, the more situated we are and the more attached we are to our sense of self in time.

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[38] These fears are also manifested in the film *Johnny Mnemonic* where half the world's population is afflicted with a plague called NSA or the black shakes. It is caused by information overload and exposure to technology.

Minimalism was not the only approach to audience-artist perspectives at this time. Where Stella and Kaprow reintroduced the materiality of the world back into their art, Rauschenberg moved from the production of art into the realm of its reproduction through hybrid forms of printing, as has been documented by Douglas Crimp (53). Similar to the rejection of art as a commodity under realism and with the seemingly infinite multiplication and quantisation of the ideal perspective by Andy Warhol and others, perspective becomes redundant as subjectivity further fractures and form supercedes content altogether. The viewing space is once again material for the view. Dynamic fragmentation born of machine technology was also plainly evident to Marshall McLuhan in the1960s, fifteen years before the first PC graced anyone's desktop (1964, 23). Breaking up the linear structures that had derived from print, digital technologies encourage a shattering of space into networked configurations (McLuhan, 1964, 27). Our increasingly fractal sense of time has become more spatial as the increments we can measure get further subdivided. The sense of progress and direction that previously arrived with time's arrow has erupted like a fireworks display, exploding into an experience of sensory disorientation and a present tense immersion in a constellated spatial environment. This trend is apparent in artistic experiments which break out of the frame of the painting—from Jasper Johns's (b. 1930) mixed media flags and targets that preceded Pop Art, to Roy Lichtenstein's (1923-1997) cartoon-inspired sculptures to Robert Rauschenberg's assemblages or 'combines', mergings of painting and sculpture, text and image—and in artist's books which break the bindings of print. In the1980s as painting re-emerged as the result of a booming art market (Reiss 132), Frank Stella reintroduced spatial perspective and dynamic concepts to his Minimalist works, in an effort to reclaim the lost depth of abstraction: "'the colors turn around and there are a lot of parts moving. So it's about action and motion—...' 'By and large, the paintings are actually static. It is the artist who sets it up so you can have the *experience* of motion and action, space and light, in the painting'" (qtd in Wolfson). These paintings exist in multidimensional space as a state of information overload, extending out from the wall and requiring the viewer to step into the perspectival space of the work[39] just as the

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[39] In 1986, Jason Kaufman commented on the historical context of Stella's new practice. Stella:

> describes this innovation as parallel to the advance made by Baroque painters such as Caravaggio over their Renaissance predecessors. Whereas Renaissance perspective had receded from the picture plane back toward a distant vanishing point, Baroque space penetrated the picture plane and projected outward, in front of the painting, into the viewer's space, creating gripping, environmental effects. For the first time, the spectator

virtual spaces of the new media do. While the drama in Stella's works remains in the abstract bombarding the senses from every direction, he uses multidimensionality to create immersive environments for the practice of real time navigation by his viewers. This is multiplicity made flesh.

In physics, multiplicity goes by the name of quantisation. It is a condition where the quantities of an observed substance do not exist continuously, but instead come in discrete packets or lumps known as quanta. In the hypertextual spaces of the literature of the new media, we see this kind of molecular structure in textual interfaces. Our navigational tools in the architecture of these texts are particularized in organizational formats conducive to accessing large quantities of information like the phrenological map in Jackson's *Patchwork Girl* or the mandala in Coverley's *Califia*. These are texts that are said to change every time you read them for there is no or little predetermined order of engagement beyond the interface structure. This privileges multiplicity and the state of duration.[40] In the *Patchwork Girl*'s retelling of *Frankenstein* from the perspective of the unborn female monster, there are many narrative voices besides her own. The monster is also narrated from fractal perspectives, in pieces, by her own viewpoints on alternate plotlines, by the owners of her original body parts, and by voices from other sources and from other books who pop in to speak for themselves. The chorus of voices becomes molecular or quantized with each node—each screen, the electronic equivalent of a page—broken into dynamic and bite-sized pieces. In *Bergsonism*, Deleuze says that memory and subjectivities are composed of clusters of irreducible elements, "the One is already multiple" (43-44),[41] what we might think of as quanta in this context, and this trend is, of course, happening in all media. Films too have been remediated by the defining feature of the new media and are more frequently using split screens and

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> could *feel* as though he bodily joined the disciples sitting beside Christ at Emmaus, or as though he, too, stood in the royal chamber watching Velasquez paint his enormous canvas. By actually extending into the viewer's space, Stella's relief paintings invite one into their pictorial drama (Kaufman n.p.)

[40] Gilles Deleuze says that the condition of duration is the result of the fact that we always already inhabit a continuous state of multiplicity that is a meta-awareness of ourselves in time and space—pasts, presents, futures (Keller 3.1).

[41] Deleuze may also be referring to Giordano Bruno's concept of the One-Multiple here, which he does cite elsewhere (1993, 24), and that I will discuss in section iii of this chapter.

introducing multiple perspectives or timelines, as in *Memento* or *Run Lola Run* or *The Pillow Book*.

If we apply this molecular structural model of quantisation to a literary text, we get the acknowledgement that each speaker's beliefs and experiences are not composed of isolated incidents, but instead that they come in discrete units that are interconnected as a part of a paradoxically subjective matrix. Each linkage is a rupture or disruption, and situatedness is realized through mouse clicking gestures of dislocation. Let me clarify this paradox. In the new media, we navigate from node to node via links. Each link we take produces connection through dislocation in perspective; it propels us outward, or onward at least, in space and time. The labyrinthine universe of the quantum feminist text might, therefore, be seen as a web representing, like Indra's net, the connectedness of all things. Like the universe, the nodes of the networked text always exist connected in time and multidimensional space, starting into wakefulness when we activate a link and engage with the material in the present. Each node in space can therefore also represent a particular subjectivity—in short, a unique perspective or point of view—and thereby birth fractal subjectivities within the text. It is this union of node as both perspective and place (in de Certeau's sense) that engenders situated knowledges for a self-reflexive browser of the networked text. Constantly in motion as she moves from place to place and in flux with perspective perpetually changing, a browser practicing situated knowledges is not an oppositional thinker, but "rather one that views discourse as a positive, multilayered network of power relations" with power thereby becoming "the name for a complex set of interconnections" (Braidotti 76). Each browser in such a textual space becomes a member of the collective of the text (and its audience) while also occupying a gradient position as a unique individual, and each step through the textual space garners her power over and self-awareness of her own perspective. This conglomerate of unique viewpoints is multiplied exponentially by the fractal vision of the browser at each place she makes a choice in the matrix: she is always looking in multiple places while always only occupying a single point in time. What could dissolve into the panic of information overload instead has the potential to become informed positioning or what Gilles Deleuze and Félix Guattari call "molecular politics" (279) or "becoming-molecular" (277), a state of being rooted in intensity. Intensity, like the senses, can only exist in an embodied state in the immersion of the present moment. Being molecular is being multiple in 'now' time.

Time-as-space, in the aesthetic dimension of the Information Age, becomes something visual that we move through. It is narrative space, the space of our cartographic impulses, the accounting of our journey. Time in memory, in the electronic text and in information space, like in outer space, follows vectors and flows and revisited places rather than linear lines, that is trajectories, since 'forward' and 'backward' have no meaning when the only constant point of reference, the only situated perspective is one's self. Narrative itself is by definition a movement in space (as in Nicole Brossard's four narratological movements explored in Chapter 1). Without motion, there is no story, no passage of time, and no spatial dimension. Lev Manovich also sees dataspace navigation—the act of browsing or reading in the new media—as dynamic, being comprised of seven structural actions: link, search, sequence, hierarchize, compare, map, guide and assume agency (2001, 272). These are also the gestures of storytelling and interactive fictions are story spaces that we move through. For Jean Baudrillard, the modernist shift in perspective was first and foremost about movement: "'The work of art … becomes a projectile. It plunges in on the spectator.' … The images fragment perception into successive sequences, into stimuli toward which there can be only instantaneous response, yes or no" (1983, 119). It might be more revealing at this point to freeze-frame our gaze in order to consider the visual arts for some further direction. Japanese designer Yuichiro Kojiro, for instance, defines the forms of Japanese art by plotting them as coordinates along axes of climate and space, and history and time. These forms share four properties—materials, *techne* (what Kojiro calls 'hand'), purpose or use-value, and the conceptual framework of its design, its idea (15). Within that framework of shared goals, four different forms emerge: Forms of Unity (comprised of continuation, union, collection, arrangement, enclosure), Forms of Force (what we might call plot or architecture: support and curve), Forms of Adaptation (fluidity and naturalness) and Forms of Change (reduction, twisting, severing, transfiguration) or what we might call agency (19). All four of these forms embody not just temporal and spatial elements, but the quality of movement as well. This is not surprising given Japanese conceptualization of space as *ma*, something that is full of tangled and conflicting forces, something that cannot be empty, something constructed in time. *Ma* is a cluster of temporal networks "perceived behind everything as an undefinable musical chord, a sense of the precise interval eliciting the fullest and finest resonance" (de Kerckhove, 1995, 166).

In the Western tradition, space has generally been characterized as 'female' and therefore an empty, devalued dimension, a lesser dimension than time with its master historical narratives (Massey 259). Doreen Massey argues against the revaluation of space over time, since this inversion simply reasserts the problem of binary valuation in inverse order. All dualisms are interconnected and she advocates a relational social network and a dynamic blending between the two (260-1). Peggy Phalen calls for a politics of the unmarked performance that practices invisibility politics:

> The unmarked is not spatial; nor is it temporal; it is not metaphorical; nor is it literal. It is a configuration of subjectivity which exceeds, even while informing, both the gaze and language. In the riots of sound language produces, the unmarked can be heard as silence. In the plenitude of

> pleasure produced by photographic vision, the unmarked can be seen as a negative (Phalen 27).

The unmarked is not empty space, but embodied silence. Similarly, science sees this emptiness as charged, as measured space, and as a full volume. In quantum physics, like in the Japanese conception, space is always structured and never empty; it is both container and component of a host of electromagnetic and gravitational fields. This "quantum ether" (Virilio, 1991b, 137) known as a *field* is outside of dimensional space because its fluctuating and polarized network is a unified measure of a discursive system (Virilio, 1991b, 136). Wholly relational and subject to probability, a field is an important concept in physics. It is a dynamic space where every point is in flux and has a quantifiable measure of force, energy and information.[42]

For Paul Virilio, depth of field in cinema is paralleled by a similarly complex "depth of time" in the new media (Virilio, 1991b, 31, 34). In film, depth of field is the measure of the lines of light, of the focal distance for a background shot. Similarly, for electronic media, we can limit the depth of our search: "we can decide how far back we want to go, how deep in time, just as we can decide how defined, how prepackaged or open-ended, that information should be" (de Kerckhove, 1997, 84). For Gilles Deleuze, depth of field is a rendition of mnemonic space: "depth of field creates a certain type of direct time-image that can be defined by memory, virtual regions of past…" (1989, 109). This is virtual, not actual, space: "This would be less a function of reality," Deleuze continues, "than a function of remembering, of temporalization; not exactly a recollection, but 'an invitation to recollect'" (1989, 109). In virtual space where entropy rules, the dynamic nature of the temporal becomes experiential and fractal, continually changing direction or, as the McLuhans argue, time becomes spatialized where "time itself has become an additional fourth dimension of space in which all events, 'past,' 'present' and 'future'" are "juxtaposed" (qtd in McLuhan and McLuhan 47).

Cultural memory, like time, is particularly difficult to see because it invests its narrative in places perceived through our sensorium—in objects, language, music and the media:

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[42] Another kind of dynamic space that is in quantum flux is intervallic space (from the root 'interval'), the space of strange attractors—and of wanderlust in the new media, a concept I will explore in Chapter 4. These are two- or three-dimensional spaces whose axes are time-encoded, being temporally out of phase with normal chronological time (Benedikt 149). We might consider this to be the quantised space of memory or of Bakhtin's chronotope, the spatialized temporal dimension of fictional worlds. Cyberspace is likewise a dynamic information field or intervallic space.

> The objects belonging to a cultural heritage of a given society are never isolated bodies in a decontextualized hyperspace, nor are they self-contained objects in a post-historical era. Their symbolic significance is not contained so much in their artistic or aesthetic qualities as such, but rather in the degree to which they are part of a convincing narrative that binds the object and the viewer together in a shared system of beliefs. What the object and the audience tell each other is that their inalienable connection testifies to a continuity, which transcends the limitations of the merely individual in time (history) as well as in space (a people) (Kluitenberg, 1999, n.p.)

The media are a primary container for structuring cultural memory—becoming "its principle 'location'"— because what they are most adept at is creating "collective narratives" (Kluitenberg, 1999, n.p.). Binding the subject with the object in a specific place in time produces contextualized narrative and situated knowledges. In fact, collective memory may be the original information space. These collective narratives give us ways of structuring our past in relation to our present and our future (and thereby endow us with strategies for living), ways of creating the 'situation awareness' air traffic controllers practice, or ways of mapping our temporal coordinates in space like the mediated information network all around us.

Mark Taylor and Esa Saarinen call this information space 'the mediatrix':

> Infinitely permeable and completely iterable, the mediatrix spatializes and temporalizes without being either place-bound or time-bound. Its place is anywhere, which is neither everywhere nor nowhere; its time is anytime, which is neither ephemeral nor eternal. While the space-time of the grid is a representation of the typographic space of the book, the space-time of the network is the reinscription of the spacing of the hypertext ("Netropolis" 7).

To say that the space-time of the network is the space-time of hypertext is a somewhat redundant perspective, but as Friedrich Kittler has observed, after Gertrude Stein, 'A network is a network is a network.' The network as cultural icon is both the emergent paradigm of our time and a metaphor that feminist writers and theorists[43] have been working with for a long time. Shelley Jackson's *Patchwork Girl* tells the history of an immortal life—"a non-life without time in the aftermath of time" ("what shape")—that is interwoven with many lives, past and present. M.D. Coverley's novel *Califia* tells the history of a family and its myriad interconnections with the land of Southern California.

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[43] The theorists include Luce Irigaray, Elizabeth Grosz, N. Katherine Hayles, Donna Haraway, Sadie Plant and Sandy Stone.

Diana Reed Slattery's *The Maze Game* tells the history of the future and of the many lives that are plugged into the history of the Game. The spokes of the mediatrix in these networked texts are created in the act of reaching back and forth through time and space, while always occupying the present moment of our navigation, even as we retrace our steps. It is the very redundancy of the network that makes its mapping necessary. We must continue to follow our trail of breadcrumbs, hunting for forgotten memories and revisited sites, in order to make meaning.

ii. Feminist Dis/Orientations

Answering a need for a structure that allows women writers to speak women's history and modes of memory, the networked aesthetic text has emerged as a form that seems to embody the potentialities suited to feminist musings. Throughout Western literate cultures, women have persisted in finding ways of speaking from the margins through the subversion of masculine forms with alternative modes of discourse. Frequently using devalued mediums—journals, letters, diaries—or tailoring existing forms to their use (like Mary Daly's *Wickedary* arranged in spiraling 'word-webs '), women authors have found ways of constructing a literary archive of their thoughts and words. This space of women's writing—as illicit as Jane Austen's creaky door—only came to be consciously and defiantly occupied and recognized in the last century. While the women's liberation movement helped women join the workforce in unprecedented numbers, it also gave them access to technology and new writing spaces.

In the efforts to define a women's counterculture, memory and oral forms of telling have been recognized as being integrally connected to how women have been left out of official histories. In her novel *Amalgamemnon,* Christine Brooke-Rose appropriates the 'second memory', the fluid, unsaved memory of computer systems, as the voice of women speaking and of prophecy. Second memory is easily lost, vulnerable to system crashes and unrecorded. It is a voice in flux, in transition, in motion in space. This is Cassandra's voice: a voice as disbelieved and ignored in the time of the victories and defeats of the Trojan War as Brooke-Rose's Sandra is in the days of automated offices and threats of redundancy. This is the performative voice of sibylline prophecy, which, once recorded, disintegrates into nonsense.[44] As a prophetic desiring or ecstatic space, second memory is an embodiment of the unspeakable or uncontainable, and *Amalgamemnon* a book of prophesy of impossible alternate timelines that teaches "the history of the future, the geography of effaceable memory…and how to write on sand, count on nothing and read bubbles" (140).

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[44] Note how opponents of hypertext print it out, eliding the spatial and temporal uniqueness of the form, and then pronounce it inferior to the print medium. Or, conversely, print narratives are cut up and pasted into electronic networks arbitrarily to 'prove' that hypertext is merely confusing to readers. One has to wonder how such a willful confusion of content for medium can persist or, for that matter, pass for serious

Prophecy—an advance and unique perspective on the future—is one of the machineries of memory in the archiviology of feminist hypermedia. An archiviology is temporal and spatial, functioning both as literal archives—physical spaces that are repositories of data, in this case, narratives—and as in Jacques Derrida's conception of the archive, something that is forward-looking with an eye on posterity, but also simultaneously "spectral" (Derrida, 1995, 84), haunted by the voices of the past contained in its contents. In this way, feminist new media works are and function as prostheses of (collective) memory, embodying the design and form of women's public and private recollections, history and genealogy in the spaces of its narratological, associational structure. Encyclopedic texts have, of course, long occupied a place in the literary canon—from *Moby Dick* to *Ulysses* to *Gravity's Rainbow*. Jed Rasula identifies the four defining features of encyclopedic narrative in print: 1. it attempts to classify or categorize the attributes of a national culture while simultaneously critiquing its political perspectives and social organization; 2. it has a "polyglot dimension" that integrates "linguistic perspectivism" into its form; 3. it is "formally indeterminate, exemplifying the double function of prophecy and narrative," thereby realizing information overload as a virtuoso performance. Its social critique also removes it from the present time, but locates it in a place nearby that is in some way contemporaneous; 4. the encyclopedic narrative presents an exhaustive study of a particular technology or science (Rasula 2). The archival text, while similar to its encyclopedic, print-bound cousin, builds on these attributes in ways that book-bound narrative could not, and instead births what Pierre Lévy calls the 'cosmopedia,' a place that blends the actual and the virtual, a place where all the information in the cosmos meets the encyclopedic gesture. Instead of a national culture, these novels set out to critique women's historical roles over time within an industrialized socio-economic and political world. Secondly, their polyglot nature tends to be a form of social critique, with the alternate languages being official and unofficial modes and codes of discourse rather than the linguistic borders of a nation. Finally, where encyclopedic narratives sought mastery over a particular discourse, these feminist texts seek to privilege multiple perspectives and the immediacy of performance. Monolithic Ishmael, for example, is replaced by the collective identity of a many-tongued subject like the Patchwork Girl. Finally, the technology or science that is being explored is the

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scholarship. These methods are of course also antithetical to the systemic nature of the form: a dynamic quantum pattern in an inextricable web of interconnectedness.

mechanics of the text itself in motion as navigated by the browser's body. Shelley Jackson's *Patchwork Girl* explores the speaking subject as 'author-ity'; M.D. Coverley's *Califia* plumbs the depths of official and private discourses; Diana Reed Slattery's *Glide* and *Collabyrinth* examine the intricacies of networked space in motion. None of these texts could have been written for the page, but, more than that, they use data glut as a means of giving agency (rather than mastery) back to the browser as she wanders the corridors of the fictional world. The matrix births, instead of an encyclopedic narrative, Lévy's 'cosmopedia,' an enfolding of the actual and the virtual, or what R.U. Sirius calls the 'infosphere,' a "process of information linkup toward the building of a global nervous system, a global brain" (qtd in Rasula 38). These are not world wide spaces as its celebrants would have us believe, but self-contained matrices, metatextual worlds, offering up a wealth of data to be interpreted by each individual browser.

The dynamic in a hypermedia cosmopedia is its textual strategies of multiplicity, polyvocality, intertextuality, hybridity, navigation, complexity and temporal flux that animate or activate the quantized and inert geographic spaces or architectural forms within an electronic narrative. Interacting with an electronic work through the act of navigation allows the textual strategies to construct a multidimensional architecture—containers of memory—in the reader's mind. As containers, these places are activated and function as housings for a new feminist science of the archive: the meandering, digressive, unruly and innately difficult to follow networked fluidity of women's countercultural discourses and performances. Here Frederic Jameson's aforementioned 'horror of multiplicity' might well prove to have just cause. These architectural spaces are subversive containers that invite (as inert elements in a dynamic system) linguistic or visual ruptures, explosions, fissures that wait to have their contents spill out into the world. They are the repositories of feminist heterotopic space, graffiti and obscenity. By making these untold or unspeakable stories spatial, they come to function as extensions of our bodies, and, within the prosthetics of memory of feminist electronic fiction, these cyborg narratives are appendages, storehouses of a data-glut of body memory and subjugated knowledges, particularly women's genealogies. These are genealogies not of the blood, but of (inter)connection. The networked text is about this sense of nomadic interconnectedness—activated by its automated links. It jumps, circles, misbehaves and is frequently sidetracked. These are the random access points of oral conversation or of database structures.

Two early hypertext authors, Carolyn Guyer and Shelley Jackson, revolutionized the first commercial form of hypertext software called Storyspace (woefully primitive in its aesthetics, but not in its structure) by carving out primarily text-based, information-loaded, architectural forms that suited the shape of women's stories and conceptions of history. Following an architectural model that evokes the ancient Art of Memory, the reader navigates the matrix of a hypertext's fluid fictional spaces to map a unique version of a text in her mind each time she reads it. Janet Murray and Brenda Laurel argue that these texts offer more than simple interactivity; they believe that *agency* is born through the act of spatial navigation within a text or an environment (Murray 128-129; Laurel 21). In interactive environments we construct the text as we read, with our choices forming the topology of the space of our voyaging. This is what Michael Joyce calls a "poetic of contours" in hypertext. He elaborates: "A contour is the space of inscription for a reader, the emerging surface of the constructive [i.e. truly interactive] text as it is shaped by its reading" (1995, 239). To Joyce, this is an innately sensuous experience. Coverley makes use of full-bodied multimedia to create sensual environments that allow the telling of women's history and desire, incorporating sound, music and video or animation immersively in *Califia*. Slattery divides narrative, space and media, producing different kinds of environments for different kinds of telling. Her story is *told* in *The Maze Game,* a print-based novel, but the game is *played* online, as the browser becomes a player by learning ~~the~~ Glide language, evoking the oracle and 'dancing' the virtual spaces of the maze.

What these authors do is create a topological space for female memory and feminist narrative through creating ruptures in the storylines, through wedging structural conversations between the parts. These texts are archives in Foucault's definition of the form: the archive creates its own speaking system even as it simultaneously fractures the temporal by existing outside of real time (1972, 128-131). Textual time, the time of our navigation, rises to the surface of the browser's consciousness instead. The memory mechanisms of these archival narratives create dense repositories of female knowledges and trajective voices, speaking a fluid feminist discourse that takes up virtual, topological space. A reminder of the components of topological systems might be in order here. As I discussed in Chapter 1, by definition they perform or transform perspectives or dimensionalities, dis/continuities, trajectories, nodes and the 'ends' or limits of spatiality through phase shifting. These archival systems use this variety of textual strategies and various architectural or structural models to engender female memory spaces.[45] These are what I call quantum feminisms. Quantum feminisms are the new visual perspectives—or, more accurately, orientations—of the age of the matrix. They are situated knowledges interpolated by experience and embodied presence. As a narratological model, quantum feminisms use their own theoretical and scientific principles to create information-rich, user-centred environments that allow for more complex networks of engagement with the text, space-time and the present moment. Such an approach requires us to occupy fractal subjectivities, that is multiple and shifting points of view, that leave us better equipped for browsing in an environment informed by radically different notions of time, space and movement.

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[45] Foucault also says that the archive is a "border of time that surrounds our presence, which overhangs it, and which indicates it in its otherness; it is that which, outside ourselves, delimits us" (1972, 130). The archive could, therefore, be seen as an orientation technology that, like the electronic novel, constructs subjective engagements.

Feminist new media artworks, in creating archival spaces, frequently use official modes of discourse as a contrast to more subversive ones. A feminist electronic archive is a space where the act of browsing and navigating privileges situated knowledges and a multiplicity of voices—in the gaps between discourses and languages within a text, in the gaps between screens—and foregrounds the browser's role as a collaborator in the 'creation' of the text as multidimensional, mnemonic space. The archive is a conjunction not only of multiple voices, but of the information overload of a collision of theories, discourses, images and sounds as well. As a situated cultural repository, it makes explicit the contingency of history on our present and delimits what it is possible for us to say and do (Foucault, 1972, 130-131), just as movement for Deleuze occurs 'elsewhere.' However, one important shift evident in the new paradigm of systems theory is the realization that no viewer is objective, that, in essence, there is no outside to any system. We are all performers within this geography of interiorities. After Werner Heisenberg's challenge to the "Cartesian paradigm," we have become aware that any view we take is simply a single perspective on "an inseparable network of relationships" (Capra 40) and an arbitrary perspective at that. In other words, our look is an integral part of the system itself—so too is any apparatus we might look with or through, like an interface. The uncertainty in Heisenberg's principle is a measure of the inexactitude of the match between representation and the real, and between vision and embodied knowledge (Phalen 114). It is the interconnections between browsing bodies and the functioning and form of digital narratives that foreground their use of ruptures in perspectival space. It is no accident, therefore, that we are now seeing a revival of Baroque aesthetics in all art forms. The Baroque invites the senses back into affective works and engages us on levels beyond the emotional as sensory navigators. It was a school that historically (1590-1725) attempted to make sense of the competing trajectories of transcendent experience in emotional and spiritual space-time. (As I will discuss in Chapter 3 in reference to Gianlorenzo Bernini's (1598-1680) *Ecstasy of St Theresa*, the artists of the Baroque period used multimedia—combining painting, sculpture (in numerous, juxtaposed and polychromatic materials), theatrical staging and lighting, and architecture in new spatial configurations—to create immersive environments for a single, idealized perspective in real geometric space.)

Shelley Jackson's electronic novel, *Patchwork Girl,* works on an architectural and archival model, finding new perspectives on women's never told and forgotten narratives.

She interweaves these with a textual checkerboard of intertexts (rendered visually in their structure), told by a cyborg narrator. This literary ecosystem is stitched together by Mary Shelley's unborn female monster—grown disturbingly lively—out of forgotten stories and a chorus of other discourses and voices, including her 'mother's' in the form of Mary Shelley's 'journal' and literary theorists' like Jacques Derrida. The graveyard that was the monster's cradle functions not only as her point of origin, but as her community, her family and her genealogy. Haunted by the memories of her original owners and her origin(s) (conceived by Mary as a 'proper woman', she is nearly aborted by Percy's editorial pen, for instance), the monster raises the possibility that she may have survived only in Mary's papers, stitched together in language as a fiction rather than in the flesh in life. Intertextually, she is thereby born in another's words as a part of someone else's story. Her life is a constant state of alien inhabitation as she tries to adjust to her willful body's dictates from its mind of its own. In fact, she suffers from the vocal tics of Tourette's Syndrome, from parts that refuse to stay glued on and from her limbs' and organs' hauntings by past lives.

The Patchwork Girl also blurs the lines between storytelling and lies. She may well be the author of Mary's journal, having tried on her mother's voice for size. She also gives the browser alternative plots to journey through. In the "Story" section of the text, which tells her life story after Mary and up to the 'present,' she provides two different versions of events (although you can only access one of these in a particular reading of that section). The plots diverge when her friend Chancy happens upon the monster naked. If a browser chooses 'aftermath' as a link to follow, Chancy reveals to the Patchwork Girl that this apparent cabin boy is actually a woman in disguise. Then, when Chancy asks, in an awkward manner, the monster to tell her her own story, she flees and is struck by a horse-drawn cab—losing her foot and part of her leg in the accident. The Patchwork Girl continues to run and, after being attacked, attacks in turn a would-be pickpocket. Leaving him for dead, she steals his leg as a replacement part. She never sees Chancy again and remains alone for the rest of the narrative and, presumably, her life. Alternately, if a browser chooses 'the different road Aftermath' instead, after Chancy sees her patchworked nakedness, the browser discovers that they fell in love and became lovers. The monster, however, coyly refuses to tell Chancy her life story and, when Chancy finally asks, she storms out in anger to be struck by the cab. Instead of emulating her 'botched brother' and resorting to violence, in this version the Patchwork Girl seeks out a circus freak friend of Chancy's who gives her some advice, a wooden leg and an armadillo. The monster returns to Chancy and, persisting in her refusal to explain her origins, rejects Chancy's love and sends her back to sea. Wholly diminished by her prideful behaviour, the monster lives alone with the dying armadillo. When it passes on, she swaps its body for her much-celebrated (in the penny press) lost limb and buries it in the foot's former casket. Finally reunited with her errant part, she stitches her lost appendage back on. Both stories cannot be true, just as she tells us at one point in the narrative that she is still actually a virgin and that all of her sexploits have been inventions of her imagination. Are these lies or fictions? Where does 'story' end and 'falsehood' begin for a creature that was born in and of a work of fiction?

The Patchwork Girl's memory tales are repositories of unrecorded knowledge and her community is a storehouse of alternative perspectives of other outcasts: "I am made up of a multiplicity of anonymous particles," she says, "and have no absolute boundaries. I am a swarm" ("self swarm"). Part of Jackson's buzzing, quantised informational space is organized on a model of the graveyard (entered through the headstone), and the archive of the text is contained in the database of individual graves where her donors cluster together geographically adjacent to one another underground, just as they are in her form, but functioning as uneasy neighbours in both locations. This site map and ecosystem of body part lenders tells the unrecorded stories of women of the era—a swarm of forgotten, faceless, unknown souls who each have their own disabilities and afflictions, and methods of subverting the official system. "What is dreadful," she asks:

> about the plural? The swarm, the infestation. Is it that, without the necessary limits of any discrete entity, the swarm seems only accidentally, not essentially bounded in size? That it becomes a fragment of infinite quantity, suggesting infinity despite its own accidental measurements, just because those measurements are accidental? ("earwigs")

An unbounded and living example of information overload (like the Borg in *Star Trek: The Next Generation*), the Patchwork Girl realistically sees herself as a messy, biological collective cluster of insect-like and inanimate parts: "Assembling into crystalline structures, insect architectures. The earwig as building block of matter, instead of the orderly playground of the atom… In place of the play of electrons: the quiver of segmented legs, twitching against their neighbours" ("earwigs"). She yearns for the clinical detachment of scientific structures, but as a collision of subjectivities that goal is unattainable for her. Her swarm's memories jostle together just like their parts, and from the friction the monster's story is born. Jackson's graveyard is a multidimensional space where the monster disinters memories, rifling through body parts and string-tied packets of memory to try to reconcile the disconnected pieces into a fractured whole. Unrestrained within a single graveyard plot or identity, she erupts from the grave with all of her stories, if not her parts, intact. As the temporal distance from her inception increases, her body and her language become increasingly unruly.

As a collaborative work with collective memory, the monster's ultimate desire is for a community. Where initially her family and circle of peers are her own body and its voices, she gradually ventures out into space and into the world (in her imagination at least) to join other fringe-dwelling communities of women. While she tries to write her own liminal history and lineage (a tale of herself as "pure particulate flow" ["flow"]), she keeps circling back to past traumas, trying to find a way to place a salve on her wounds. For the monster, whose skeleton is a web of scar tissue that bends but will not break, she finds healing in knitting the crazy patchwork pieces of her past back together in this organic narrative—just as she sews unruly body parts back on—to form a future. Her body parts exercise their own will. Her lips laugh of their own accord and "[h]er tongue (my tongue) stirred up a fishy stew of folly, poetry, gossip, heresy, and the news, and she mixed up the real and the imagined, so you never knew where you stood with her" ("tongue"). This circling and confrontation of embodied and sometimes traumatic moments is literalized in *Patchwork Girl* where the reader chooses the plotlines, limbs, wounds, and trajectories she will traverse in this text to excavate pain and resurrect healing. Allowing us to follow those scar trails and hear the voices of their histories, Jackson weaves an intertextual body of competing parts of the self, female community and memory spaces.

Where Jackson seeks to create a community of voices and connection, Carolyn Guyer in *Quibbling*[46] presents an evocative meditation on connections, exploring colour, touch, texture, and the echoes of sameness in lovers' lives throughout history. Finding common elements, objects and sensations that are central to her female and male characters' interconnections, Guyer weaves a labyrinthine space complete with a maze at the centre—based on Arthur Rimbaud's grammar of colour—in the form of a kite poem which traces the many corridors of the sensuality of existence. These technicolour ribbons of linked themes—a symphonic intertwining of love affairs and daily rituals that are woven together out of bits of glass, windows and moons, the curve of necklines and the hint of breasts, moon-dew, menstrual blood and beloved bowls, swaths of cloth, the sweep of hems, and strands of music—challenge and replace conventions of linear narrative throughout the text. The labyrinthine plot is paralleled by the competing visual trajectories in this architectural labyrinth of sacred spaces, and by the erotic charge of interconnection interwoven in space and time. The labyrinth was originally a site of religious ritual and of sacrifice, but for Guyer this maze is a means of exploring the tangled webs of lovers' lives and the sense of sameness in human experience that is independent of history.

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[46] Guyer's *Quibbling* (1992) is a text that I had originally planned to include in this study. However, for reasons of space, that are in no way a reflection on the work, I have had to omit it. It is a key text in the history of women's writing for the new media and deserves a full-length study of its own.

The difficulties of navigating such tightly interwoven stories, which have little sense of chronology, but have a multiperspectival nature embodying an intense rhythmic ebb and flow is the essence of Guyer's Baroque aesthetic in her immersive *l'écriture feminine*. Navigation in this real time, fluid environment is like inhabiting the interior of a suspended dream state of the present moment. This sensory overload is the space of Julia Kristeva's semiotic chora where the patterns of the nonverbal, of sensation, and of desire organize our perceptions. Guyer herself postulates her 'buzz-daze state' that I have previously mentioned, a feeling of being divided between spaces, to describe the nomadic experience of navigating the shifting sands of hypertext fiction. This is a temporal as well as a spatial shift where an immersive, memory-like state surfaces for the reader. It is also what Darren Tofts calls hypertext's polysemic nature that approximates information overload (103). Guyer's sensory text is an immersive environment. Her world privileges the senses and a new sense of re-embodiment through an examination and the creation of the virtuality of "liminal spaces, sacred places of social and personal transformation..., neither imaginary nor real"; they are "a subjunctive realm of externalized imagination where events happen in effect but not [in actuality]" (Morse 180). As an abstract form or a "structure of what does not yet exist" (Joyce, 1995, 235) as Michael Joyce describes hypertext, *Quibbling* evokes Gertrude Stein's sonic, repetitive, rhythmic continuous present, a Churrigueresque play of light and shadow, surface and depth, and web of elaborate interconnections. Guyer's hypertext creates a spiritual experience out of the sensuousness of the timeless present moment.

M.D. Coverley's *Califia* excavates the past from lost memories: from the ravages of Alzheimer's, clues about an extinct native people's last journey and final stand, oral histories, hints of secrets, unsolved puzzles and the quest for buried treasure. *Califia* sets out to devise a new kind of history that tells lost stories and popular or unofficial knowledges from a woman's sensory perspective. This alternate history is a feminist genealogy or countermemory told through a discordant union of discourses: text-based biographical 'snapshots,' letters, government reports, deeds, conversations, journal entries and reconstructed narratives are complemented and rediscovered through photos of people and places, music, journey maps and a spinning night sky with its matrix of guiding stars. *Califia* is the story of a search for the forgotten origins of the fabled Amazon queen and her gold-rich empire, paralleled with the mythic quest for stardom in Hollywood and a woman's search for her buried inheritance. Clues to the past's secrets, that the land keeps, reveal the possible treasure in an alternate future if it can be excavated from lost wisdom and forgetfulness.

The text makes use of full-bodied multimedia to create a sensual space that allows the telling of women's history and desire, incorporating sound, music and video or animation, in an immersive environment. What Coverley does is create a visual space for female memory and feminist narrative. *Califia* is an an-archival structure situated in time. Unlike the ahistorical exterior of the Foucauldian archive, the memory mechanisms of this hypermedia work create archives or repositories of female knowledge and voices, speaking a fluid feminist discourse that takes up (virtual) space. This is a sensory system—written in the fluid space of surface, unsaved memory that is vulnerable to the mnemonic erasure of system crashes, that is vulnerable to forgetting—that uses a variety of textual strategies and structural models to engender female memory spaces. The archive is a conjunction not only of multiple voices, but of a collision of theories, discourses, images and sound as well. The connection between the form and function of the new media is found in their shared use of a rupture in space and time that interrupts a browser's perspective. She cannot see where she is going, cannot predict her next step. For instance, as a part of the foregrounding of navigation in the text, and to use an image-based example, *Califia* is speckled with maps. While these cartographic elements stand as a site of official discourse within her text, the unofficial sites of matriarchal history and her feminist journeying are written as a treasure map embroidered on a blue blanket in a dead, symbolic language—the native tongue of Chumash, with its language of the constellations—undercutting the 'official' nature of standard issue maps and subverting their authoritative nature. (It is significant that the 'official' maps cannot reveal the true location of the treasure.) In fact, Coverley encodes the whole of her hypermedia novel around maps and itinerary routes. This architectural structure and subtext drives the narrative forward, with the CD-ROM ending each time a browser traverses one of the four compass points of Cartesian space, until she visits all of the significant places in the text, or in the lives of five generations of California families. Incorporating space and motion into this polyvocalic mélange, Coverley creates a multidimensional archive in the form of Calvin's notes where browsers can peruse docu-dramas and discover the background to events that they are reading. Just as *Califia* includes footprints that are followed throughout the text, so the archive is a visual space where movement between viewpoints and discourses is foregrounded. This space privileges polyvocality in the multiple discourses found in the text—a collection of official and unofficial knowledges—and makes issues of history and storytelling key to this repository. Using the metaphor of travelling as the means of navigation in the text, and as a metaphor for reading and remembering, Coverley's text allows the interactor to write the mnemonic map of her own journey, but as in life she cannot see where a single step will lead her. She can only perceive the overwhelming mass of options.

An archive is born of forgetfulness (Derrida, 1995, 11), for it is in the drive to remember, to map, and to document elusive cultural memory that collections are made for posterity. *Califia*'s archival system, however, is not interested so much in posterity as in immediacy. It is both temporal and spatial, existing as intervallic space simultaneously both in and out time, and embraces contradictions, privileging emotional and sensory impressions and information as the most important 'knowledge' to be stored. The key piece of intelligence in the text is the experience of transcendence that comes with the acquisition of the treasure of emotional connection, as when Violet's footprints appear in the sand or when Calvin learns who his parents were. The dynamic links in the new media foster the immersive associational logic that makes it a mnemonic form, but, as an inclusive archival space, it also allows just such an overloading proliferation of contradictions as the alignment of emotion and sensation with that quality that is usually deemed far more linear in its logic: 'knowledge.' Being rooted in short term memory as it is, the hypertextual spaces of the new media are by extension also rooted in memory loss. Without a hierarchy to govern the many plots, directions and perspectives, a reader must decide what is important in the text and, working with an associational structure, is bound to forget many details. However, in *Califia* the sensory information is encoded—not in the text as such—but in the interiors of its archival structure. Dispersing information into the multidimensional plot architecture with its family trees, StarMaps, Kit Bag and 800 screens, the text plays with memory loss as an asset (not a bug) by using a browser's limited short term memory against herself, and making the recall of the overwhelming mass of specifics difficult. A tri-part narrative structure foregrounds the immersive, sensual experience of connection through reading in the moment and part of the joy in the text is experienced through the physical fact of navigation. Plot still exists, but because it is abstract and spatial—being the very structure and interface of the work as animated by the nomadic act of reading—it is difficult to recreate in the mind except as an emotional and sensory response.

Forgetfulness, one aspect of information overload, is enacted by this lack of hierarchy in the networked form itself. Creating a sense of loss and of being lost, a browser jumps through *Califia*'s many layers of text, image, and sound, anticipating the future and being surprised by returns to past spaces, like Paradise Home or Nellie's Deeds—made new and significant in revisits. The text privileges forgetting and the rediscovery of what has been forgotten through the use of the archive and Alzheimer's Disease as structural and aesthetic tropes for the restlessness, nomadism and the obsessive moving and re-moving of stashes of gold. An assemblage of narratives, images, documents and prophesies, the text is open-ended and invites a browser to lose herself in a rambling web of the sometimes contradictory pieces comprising the journeys. Augusta's narrative relates the present day chronology of the grail-like quest to solve the riddles that lead to the legendary treasure, but it also tells the story of her mother's decline into the "convoluted labyrinth" of Alzheimer's Disease.

Violet Summerland, Augusta's mother, is one of the last surviving characters in the novel who possesses information about the gold's location. The disease, however, affects her speech as it does her mind, and her meanings have become "crippled." In such a state, Violet functions as a liminal figure occupying a place at 'Paradise Home' on the threshold between the present and the past, between madness and sanity and between language and symbol. Her affliction functions as what Janet Murray calls a "mythopoetic state...between the world of ordinary experience and the world of the sacred" (292). The aesthetics of her forgetfulness are found ideally in the freedom from past cares: a kind of liberation from history or a rebirth into living in an embodied state in the present moment. Memorylessness could mark a return to innocence, to a preverbal state, or to the immersive environment of an eternal present. But Violet is outside of time with her difficulties in communicating in the here and now. She speaks only an encoded, associational, private language, and occupies a deeply isolated immersive state. Advanced sufferers of Alzheimer's Disease have no short-term memory and no ability to let new memories form (Ross 21). At the same time, as a sufferer of the disease, Violet does retain long-term memories of past events, but cannot speak them in language.

In *Califia* the impulse is to remember in order to 'unforget'—that is the past is not discarded and neither facts nor competing versions are avoided, but instead these facts become a launching pad for a strategy of feminist fiction that leaps forward out of the predetermination of linear, written history and fixed point perspective into a new kind of visual narrative, into a new kind of vision. Unlike Benjamin's trapped angel, *Califia's* characters keep one eye on the future and one on the past. A digital archive, a container for all the facts known about three California families over five generations, the text fulfills the compulsion to remember, but as obsessed as it is with what Peter Lunenfeld calls the 'Alexandrine Dream,' with cataloguing, collecting and organizing data, this is not an end in itself. The preserved documents and objects gesture toward multiple and varying interpretations or occasionally misdirect the reader. No fact is too small or insignificant, no document or scrap of cloth or letter too cryptic to be discarded. It is the subjective act of interpreting the data that ultimately matters, for, the text is concerned with process and narrative—not with monolithic Truth, but personal truths.

Ostensibly *Califia* is a journey, and introduces itself by way of a mandala with four directional departure points: South (The Comets in the Yard), East (Wind, Sand and Stars), North (The Night of the Bear) and West (The Journey Out). From there, the narrative quickly diverges, or triverges, along different information trails. Not only does each of the four sections begin with a summary or apology for what will transpire within, but there are several narrators who use different discourses to follow different paths. One narrator, Calvin Lugo, designated the alleged archivist of the text but who, like the Patchwork Girl, is most given to spinning fictions, coyly renders the text as an oversimplified, linear diagram [Fig. 2.1. Calvin's illustration], illustrating the narrative structure as told by the three narrators as three parallel lines. (Calvin notably omits much of the complexity of Augusta's journey to make her fluid travels fit his model. Most importantly, he elides her repeated cyclings back to her own yard in her search for the 'comets,' an inheritance of gold coins, buried on her property.) Calvin's path traces random themes and docudramas. Kaye Beveridge's path criss-crosses 'Kaye's Legends' and 'Kaye's Stars.' Unconnected from these lines, Calvin depicts the maps, star maps and archive that are key components of the text.

In *Califia*, the parodic impulse is contained in the effort to remember the details of the past in order to 'unforget' or practice anamnesis. Derrida defines 'anamnesis' as 'unforgetting' or a doubled movement of retracing our steps between the acts of remembering and forgetting that is the function of the archive. There are distinct parallels here with Maxwell's Demon who cannot forget—who remembers everything. The Demon was a microscopic being, proposed by James Clerk Maxwell in 1871 as a part of the second law of thermodynamics, who could sort fast and slow molecules to decrease entropy in a closed system (Hayles, 1990, 42). This Demon, like Violet, is "a liminal figure who stands at a threshold that separates" not mnemonic states as Violet does, but order from chaos (Hayles, 1990, 43). In 20th century studies of chaos theory, the Demon came to be seen as a sorter of information with an infinite capacity for memory storage. (Chaos itself, of course, is always gendered female.) The creature's inability to forget, or his anamnesis, is a tool designed to tame the feminine state of chaos or information overload, even when it is positively revalued as a state of "maximum information" (Hayles, 1990, 51). As a creature of the archive, his ability to remember is ultimately spatialized, functioning both as a means of movement back and forth in time and space and as a series of images in the mind. In *Califia*, the doubled motion of remembering and forgetting are central to the text, to recover lost secrets from the ravages of Alzheimer's Disease, hidden treasures, buried connections. The question remains: can an archive be a book or a book an archive? Coverley's text welcomes information multiplicity or data glut, and enacts embodied memory. Privileging a women's community and oral forms of storytelling, *Califia* undertakes a rediscovery of what has been forgotten in the present and reclaims, through the conjunction of image and text, text as image and image as text and conjunctions of space and time, the necessity of literacy in multiperspectival looking and in non-conceptual ways of knowing. Positing an ongoing grail quest for meaning and direction, the text re-creates an archival structure where an elusive treasure of the constellations of social connections are the ideal, but where linguistic ruptures, quakes and fissures are necessary for growth, for changing perceptions and for reorganizing expectations of informational ordering. Just as the California landscape is constantly rewritten by earthquakes and landslides, and functions as a literal and figurative container of forgotten memories in *Califia*, so "[o]ur memories" like the text "are always in the process of revision" ("North: Night of the Bear, Introduction"). This archive, on the parameters of its own project, can never be complete and will never reveal definitive answers. It can only ever tell more stories and give more perspectives on the events contained therein.

The information that is gathered about the interconnected histories of the families is three-pronged as shaped by the narrators: Augusta keeps facts, linear narrative and chronology; Calvin writes fictional speculation; Kaye compiles myths, legends, and ephemeral arcana. The random access nature of the text comfortably encompasses these three different types of information—those being fact and chronology, fiction, and myths and legends—without resolving or rationalizing the contradictions between the different forms of knowledge. In one of the sections, called "Augusta's Topology: Manila Files," Augusta explains:

> Regardless of the urge for creative flair, I see the *Califia* material as *information* that can be read from a page in a folder. For me, the documents are not dances or stars or features of the landscape, but files. Not much different from the folders that are in the study... I am keeping *data* straight this way (my emphasis; Augusta's Topology: Manila Files).

It is Kaye and Calvin who see the history in terms of dances, stars and topological features, while Augusta is much more concerned with narrative as we are accustomed to it in postmodern, print-based fiction. These folders of gathered data are bundled in associational packets like words in a thesaurus. In Latin 'thesaurus' means a "treasure house . . . of inventions" (Krell 55); it was not an associational dictionary, but an associational space—an architectural site for the visual practice of the Art of Memory.

The process of navigating in an electronic environment is quite similar to the Art's superimposition of images on architectural spaces. As readers of a hypertext, we must take note of visual or textual markers to move back and forth through archival space, building up a library of associational details in our minds. In *Califia*, we can navigate the spaces of Augusta's notes like a perambulator of the mnemonic *ars* by selecting a file tab, akin to an architectural detail, for an unfurling of interlinked associations, but these filed jottings are separate from her narration of the journey. Her narrative is ostensibly chronological, but like an architectural thesaurus is constructed of memory spaces designed for us to wander through, and, moving in virtual, multiperspectival, architectural space, we can jump from room to room without having to follow a predetermined floor plan. Augusta's chronology is based on the sequence of discovery on her journey, not in the order events happened, and her order is not our order as readers because, of course, this hypertext evinces database logic. As well, we are continually reminded that information is different from fact or knowledge. Information is meaningless and subjective. Data must be interpreted.

Likewise, the narrative 'trajectory'—a swarm of vectors—follows associational meanderings, digressing, tracking leads or clues that might help locate the lost gold. The reader can voyage Augusta's supposed 'chronology' in many orders. But, her telling must be supplemented by the other two narrators' findings or only a small part of the total picture and a single perspective of this many-voiced tale is revealed. Augusta tells us:

> Calvin has designed the Archive pages to hold the contents of father's study *we now think are important*. He and Kaye have had some fun—embroidering it all in Docudramas. But I have requested that he not add *unnecessary junk* to my pages... Additions are being made as Kaye brings in documents from other sources (my emphasis; Augusta's Topology).

Thus we are told explicitly that the material has been shaped selectively and embellished where they deemed it necessary. Calvin's 'junk' in the text is twofold—fictions and decorative designs (Augusta and Kaye tell us that Calvin comes from 'tackyland,' Hollywood, and his pages reflect this)—it remains unclear from this context whether Augusta is referring to one or both kinds of embellishment. This material that they are working on is constantly being sifted and resifted, both by them and by us as the context keeps changing.

Diana Reed Slattery's *Glide* is a different kind of exploration of time and memory, being the history of a future built on the ruins of the space of our present. The matrices that criss-cross this text are elaborate and three-fold. The overarching web is the sentient computer program and cultural archive, the Outmind called Óh-T'bee, who interconnects the society through time and space. The underlying web is the intricately networked web of blue water lilies that provide the pollen that was both the impetus for the Game, the Dance of Death, and the origin of its language, Glide. The third level is the intricate interweaving of social connections forged by the mortal dancers through time and space as they engage and interact with the Outmind, the lilies, the immortal spectators, called Lifers, the Maze or gameboard, and each other. These three networks are intricately interwoven to produce a complex social ecology: a web of cultural, political and material life.

The history of this society is complex and is remembered by Óh-T'bee even as she runs its day-to-day operations. She is an emergent intelligence born of a complex network of integrated information systems in a futurist version of our culture. When surveillance, security, education, military, finance, gambling and entertainment systems merged with the mafia to create a political force of incomparable power (called Megalomedia), the greater matrix was born. While the Media had been in the business of re-writing history for a while, with the merger the corporation began to use reality programming, its surveillance tapes and wars to create history: "War had always been good for business; the Media just reversed the equation: business was very good for war" (i. 19-4). This produced an alchemical mix of hybrid information that was galvanized into an animate system of synthetic synaptic intelligence, out of which sentience spontaneously emerged. Like Violet in *Califia,* Óh-T'bee becomes the pan-perspectival cohesive that holds the culture together: archive, transport system and technological engine of all kinds of development. Each member of this society is in turn connected back to her through their PDA, known as a scorecard, by her Gaze. Once the surveillance systems became ubiquitous, then the Gaze was born. Once surveillance was everywhere and nowhere all at once, there was no longer an audience to take an interest in reality programming. Instead the technology becomes transparent, and Óh-T'bee arose as a living and, in some sense, an organic construct of information, data and knowledge systems all rolled into one. Wallenda, the headmaster of the leading school for Dancers, muses: "The sensitive tips of the Outmind touch every Dancer in every School on every level, right up to Origin School. Do we hold her or does she hold us? She connects us by uncountable criss-crossed threads. Or do we hold her together with our needs? Provide her with pattern, the story of our lives? The shape of the Game?" (i.10-7-8). In turn, every dancer is not only connected to her, but also to the lilies.

The aquatic web of lilies is an organic matrix: "the world where every element spoke, and told its meaning, unto itself and connected to all the others" (i.20-4). The lily itself is rhizomatic, a plant with an elaborate networked root structure. This is also the metaphor for the networked self in the Information Age chosen by philosophers Gilles Deleuze and Felix Guattari in their masterwork *A Thousand Plateaus*. For them, complexity is by definition "spatio-temporal relations" and in the complex web of this root's structure, these relations between space and time become "dimensions of multiplicity" (263). This very multidimensional multiplicity is not and cannot be rendered or understood in a flat or linear manner. It can only be mapped and comprehended in topological space as a rhizome (263). They use the rhizome as a structural model for the entanglement of the subconscious self that is "perpetually prolonging itself, breaking off and starting up again" (20). "The rhizome," they state, "connects any point to any other point" (21):

> The rhizome operates by variation, expansion, conquest, capture, offshoots. Unlike the graphic arts, drawing, or photography, unlike tracings, the rhizome pertains to a map that must be produced, constructed, a map that is always detachable, connectable, reversible, modifiable, and has multiple entryways and exits and its own lines of flight (21).

The rhizomatic map of the psyche, like the multiverse, archival fiction and the network of lilies in *The Maze Game*, has no beginning or ending, but instead endlessly circulates pan-dimensionally within its own structure. Our goal, as browsers, becomes the desire to map the text or to flesh out the gaps in the narrative rather than to reach closure. Our goal, as dancers, becomes the desire to map the Maze just as the Glide workers had invented the motions (under the direction of the Lily) that became the dance:

> The blossoms were closing now, one by one, in waves across the pond, like a chord struck. … As the tides shifted, larger clusters separated, drifted apart; smaller groups gathered into one… Within the expanding labyrinth, waves, and waves within waves, the moving surface of a stillness, crossed over each other, lifting the lilies, moving the waves of fragrance, sinking back. Moving, changing, but always in balance, maintaining balance not by standing still, but, like the Glides, always moving on, circling back, learning the moves of a game that traced a path among the lilies that changed beneath their feet." (i. 19.8-9)

This balance is integral not only to the Glides on the lilypads, but to the resources of the networked culture as a whole. It is a disruption in balance—the 'cheat' in the system—that throws Óh-T'bee into a state of crisis.

The third network in the novel is made explicit by the existence of the other two, or as Diana Reed Slattery put it in the Nouspace MOO in a discussion of Glide: "All of the networks are networked in *Glide*." As both computer matrix and lily pond are rendered as rhizomatic, topological systems, the organic network is revealed to be that which interconnects the social relations surrounding the Game—just as the Dancers are genetically engineered so they and their histories are intricately interconnected. Each Dancer knows the history of the victorious Dancers of her set intimately, "connecting them thread by thread to their own tradition: their pride of mortality, their faith in the meaning of their short lives, the purpose they served, the irreplaceable part they played—" (i.10-8). It is when T'Ling is revealed to be of unknown origins that chaos is let loose in the system.

The mediatrix of memory is the only increment of time in a spatial cybertextual journey. The hierarchical importance of time in our culture is apparent in our every day language; we can live on 'borrowed time', make the most of our 'free time' and even suffer from 'jet lag.' Computers both run on time—driven by their CPU clocks—and undermine the constants of the temporal dimension—"sequence, duration and rhythm"—manipulating them into "multiple times" or multiple temporal dimensions across information space (McLuhan & McLuhan 53). The subjective or experiential dimension that we might call computer time—the time of our voyaging—is a different mode of measure; time, for us, in virtuality is unhinged, affixed to motion, vision and shifting perspectives rather than to the computer's finite, experienced space in time or space in place. Our voyage in the simulated time of the computer's world blends with the sensory experience of real time navigation to produce a new kind of time. Sensory time, the space of the old, familiar world of the body, is immediate and is freeze-framed in the experiential realm: the here and the now. But this new time, called 'real time', is what Paul Virilio dubs a new perspective born of the electronic age. Real time is a mediated experience of the present moment where we are made conscious of spatialized time as an experiential dimension. Like Vilém Flusser's vision of post-history, Virilio sees this as a kind of post-time, a global time system that replaces the simultaneity of photography with the instantaneity of electronic communications (1995, n.p.) This new foregrounding of temporal space as a sensory environment for the communication of aesthetic information results in a privileging of the sensory interface of the body: "Word, image and sound intersect in the machine and are projected so that one must read, look, hear simultaneously" (Taylor "Telewriting" 6). This multiplication, intertwining and periscoping of interlocking layers of sensory environments—what Taylor and Saarinen call surfaces and depths—create an urban landscape, like William Gibson's cyberspatial vista, that mingles perceptual and literal discourses and modes of engagement. The act of creation and design thereby blend, becoming a single motion and moment (Taylor "Telewriting" 11): "interiority and exteriority fold into each other to create surfaces that know no depth and yet are not merely superficial" ("Netropolis" 2). This interplay of folded space is a dynamic one like a Möbius strip that we must navigate to perform these multidimensional layers with a mouse, revealing the interiorities of structures within structures. These are not just text or images (or sound or animation, etc.), but spatial relationships among ideas.

These spatial relations are more than simply perceptual; they involve perspective as well. McLuhan argues that the "effects of technology do not occur at the level of opinions or concepts, but alter sense ratios or patterns of perception steadily and without any resistance" (1964, 33). Artists, unlike other people, see this clearly, he argues, and there is certainly a grain of truth to it. According to him, they are the only people who master the technological transitions because they have an innate understanding of the mechanics of sensory perception (1964, 33). For McLuhan, it was the medium of print—not the content—that produced a split sense of auditory and visual experiences, a sense of individuation and a sense of continuity between space and time (1964, 86-87). For Gertrude Stein, the only thing that changed from one generation to another was our sensory perception, what she called our 'time-sense'. She defined vision as the dynamic in the creative system that transformed our sense of time and produced new schools of thought and art ("Composition" 513). As a part of this trend, the newer technologies are having an ongoing effect on our notions of perspective. In the Renaissance, art, architecture, and horticulture used a single focal point as a means of depicting perspective, but this single viewing point negates movement:

> In the case of focalized work, one can theoretically choose any point of view to look or read from, but the intent of the work is that only one point of view is most encompassing. The necessary movement that is involved in circulating around or in front of these works is implicitly negated, as so much dispensable trial and error on the way to the canonical prospect (Strickland n.p.).

This is why the new media do not use perspective as an orientation, but choose instead the disorientation of linking. Like the Glides, we must remain in motion when no balance is possible or sink beneath the surface of the pond of information. Point of view has always been by definition fixed in time, but the dynamic nature of disorientation invites in the transformative spatial, unfolding intrinsic dimensions out into limitless moments in space. Motion is disoriented perspective in the new media. The science of the body in motion in the spaces of the text creates multiple, shifting points of view, trajectories of the subject, which, by definition, cannot be fixed except in place in time, that is in the 'now.' According to Andrew Benjamin, motion throws the subject into a state of flux, a Bergsonian state of suspension in duration, for the subject can only exist in the present moment (Keller 1.3). This shift in perspective to multiple viewpoints—quantum perspectives—is a trademark of the paradigm shift of the information revolution as new technologies permit a new "deployment" of subjectivities (Keller 1.3), ultimately altering not just how we see, but transforming our vision itself. Text becomes behavioural rather than static and reading becomes browsing, a different way of looking. This is what Gebser and McLuhan were referring to when they called our contemporary age of historical comprehension an aperspective world.

iii. Space-Time Architectures: The Aesthetics of Memory

"Cyberspace has no memory." –Wolfgang Ernst

Rosalind Krauss questions whether the term 'medium' continues to be of any use to art, reduced as it is since the advent of the aperspectival and multiperspectival Minimalisms. She ultimately decides that contemporary works of art exist as recursive structures in a 'post-medium condition', and, since the nature of a medium is the sum of its "manifest physical properties," it ultimately, therefore, must "specify itself" or speak its own shape (Krauss 7). For Friedrich Kittler too, a medium is technologically dependent, being a discourse network, that is being a domain of cultural exchange (Wellbery xiii), and mediality is the inherent condition wh[illegible] an art form can speak itself. The dynamic interplay of spatial relationships between modes of speaking and

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shifting constellations or configurations of ideas makes for fluid or variable architectures[47] that proliferate in the virtual spaces of electronic fiction as well:

> Branching options multiply, menus reproduce, windows open on other windows, and screens display other screens in a literal dispersal that disseminates rather than integrates. Hierarchy unravels in a web where top and bottom, up and down, lose consistent meaning.
> Everything—everywhere is middle. Instead of an organic whole, a hypertext is a rent texture whose meaning is unstable and whose boundaries are constantly changing. (Taylor and Saarinen, "Telewriting" 6).

Hypermedia revel in this aperspectival disorder, and feminist theorists and authors have sought to reclaim the chaotic state, that has traditionally been gendered female in literary studies, as a politicized form. This is the shape of the newest kind of literary work—a dynamic, organic matrix recognizable in the spinning lexicon of the Glide language. This is the disorientation of information overload and forgetfulness as both new visual perspective and mnemonic architecture. This shift in the visual horizon was foretold by one of the great 20th century prophets, Albert Einstein. He prophesied the coming of the "second bomb" in the wake of the atomic one; he warned that a destructive force called "unlimited information" would follow in the footsteps of wartime industrialism: "A bomb whereby real-time interaction would be to information what radioactivity is to energy. The disintegration then will not merely affect the particles of matter, but also the very people of which our societies consist" (Virilio, 1995, n.p.). This explosion is the creation of new subjectivities for 'real time' perspectives. Once global time (as opposed to local time, which, Virilio argues, the media and supersonic travel have eliminated) is implemented as a mediated event all history will come to a standstill, teleology will be at an end, and only the present moment will have substance. Once real time is accepted as the norm for temporal navigation, then new kinds of fractured subjectivities will inevitably arise from the dust of that detonation. Mark Taylor and Esa Saarinen see this structural shift to a virtual architecture of the future as something they call "electrotecture" ("Netropolis" 4). Electrotecture is a blending of the artistic and architectural task of the re-presentation of essential structure in aesthetic form in virtual space. The foundation is fractured or digitized by nature, incorporating the "endless construction, deconstruction and reconstruction" ("Netropolis" 6) of data from information pools—whether online, in a hypertext, or stored on a computer's hard drive. Moving into the field of topological—or geometric—space, even the coordinates charted here are constantly shifting. Freed from considerations of time and space, the new media nevertheless continue to render space and time, but in subjective and nonreferential ways.

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[47] Liquid or TransArchitectures is the focus of Chapter 3.i, Unfoldings: Bodies of Memory.

Cyberculture and virtual worlds call notions of situatedness into question (Virilio, 2000, 130). Since the advent of the virtual realm, we have seen the erasure of a natural horizon as there can be no sense of depth or distance beyond the illusory in electronic space. Without a horizon by which to orient ourselves, our own embodied knowledge becomes our compass point and a body to steer by—our sole means of orienting ourselves in the fictional world. The boundary, circle, sphere and limit of our vision, thought and action become the horizon of the text itself. In *Patchwork Girl,* when the monster's language unravels into nonsense, the boy Ojo attributes the problem to this very lack of orientation: "her brains get mixed somehow and work the wrong way. There is neither horizon nor perspective nor limit nor outline nor form nor center. This turns lack of direction into a constructive force" ("the wrong way"). A region bounded by limited knowledge or experience has a false horizon, the imagined outer limits of a text's discourse network, or its own textual frame. This represents not the end of perspective but the end of a hegemonic construction of a virtual world. As a result, the horizon of the text is like the event horizon of a black hole. It is not something that we steer towards, but something that we are immersed in, interpolated by, something subject to forces and trajectories of incredible magnitude, even as we try to steer out of it. The vanishing point that stretches towards infinity that we have seen in the visual perspective of art becomes a temporal rendition of the infinite in the interiorities of virtual space. This virtual horizon is therefore a false or manmade horizon subject to subjective interpretation in which the "*frame of the screen*," our perspective on the text, has superceded the "distant horizon *line*" (original emphasis; Virilio, 2000, 119) of our traditional perspective on the real world. Paul Virilio argues that a third dimension of matter in real space has sprung up to supplement 'mass' and 'energy'; that dimension is 'information' and that real time perspective has resulted in a blending of this virtual with actual matter (Virilio, 2000, 119). A new temporal perspective on and in information space is this commingling of the actual and the virtual, and in such a space only our bodies, our sensory experiences, can be a reliable measure of our orientation. They become our interface between the two domains, creating a space in the text for the browser to insert herself into. This threshold between states opens a site and place for art that is mathematically infinite, multiperspectival, dynamic, networked, fluid and is in a perpetual state of flow. Since perception is movement by definition, perspective is naturally thrown into motion once the interactor in a work of art defines her own lines of sight. There can be no unitary experience of a text in such a space. This is not the blurred image of the matrix in motion, but an endless series of arches of sliced still images constellated in space and time. A fixed shape for the fluid matrix as its splayed fingers spin across the cosmos is visible only in each individual instant of freeze-framed blinks, in each instantaneous fold. This is also the shape of memory.

Memory is the site plan of our cosmos and the topology of a whole virtual world. Memory can be understood only in retrospect after we have stopped moving through that particular, situated place in time. It is only in retrospect that we can see it and give it substance. The memory of an event is always invisible in its present tense incarnation—like the telluric lines and forces of energy that the Victorians gave such credence to or like the higher dimensions of hyperspace. Memory does not move like life, but like the present, like now time is freeze-framed in the window of instantaneity. According to Henri Bergson, memory folds so that the leap to a place in the past renders the virtual actual in our present tense experience (Deleuze, 1988, 62). Like Muybridge and Marey's still photos of movement, we remember and relive in an embodied state the dynamic moments suspended in time. Memory like the archive is static, being the past's present on pause, unless we actively engage with it and draw its component parts into the present. Like Greenberg's three-dimensional opticality, memory introduces our meta-awareness of the virtual nature of the art form into our interior perspective and mental horizon of the experience of navigating both actual and virtual space. Bergson believed that memory always incorporates two simultaneous movements into its interface: translation as a way of turning back to meet the past head on, and orientation or rotation as a way of bringing past moments forward into the context of the present (Deleuze, 1988, 63-64).[48] As a result, memory becomes inverted as the sensory experience is foregrounded and the 'now' of the text becomes far more important than the 'then' (Virilio, 2000, 127). This is Bergson's dynamic, doubled archival gesture of mnemonic duration where active engagement with memories in place and space produces particles of past that reach into the present, and the quanta of the present and past that jump at light speed toward the future.[49]

This reflects in part the changing nature of the work of art as it was seen in the 20th century. Walter Benjamin was interested in alterations of culture that developed as the industrial aesthetic was replaced by the postindustrial aesthetic of mass appeal. This engendered a shift in "the mode of participation" which in turn altered the essential engagement with highbrow art as it became transmuted into popular culture (Benjamin 239). Art requires active engagement being what McLuhan called a 'cold medium,' a medium that demands concentration and dynamic, interpretative work. Popular culture, on the other hand, is a passive or 'hot medium,' producing diversion (or entertainment, as we now call the industry) rather than engagement. The masses, Benjamin argued, therefore absorb or ingest a popular art form. As a result, one of the major media for the masses is "architecture as a prototype of a work of art whose reception is consummated by a collectivity in a state of distraction" (Benjamin 239). This is a manifestation of the sensory state of information overload. Buildings are physically navigated and perceptually possessed by the senses, particularly touch and sight (Benjamin 240), just as Environments, Happenings and Installations are. Once again the large shadow cast by the image of the flâneur is apparent as the exemplary figure for our age, just as the perambulator of the Art of Memory was for earlier ones.

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[48] William James too was aware of the primacy of the present tense in our experience: "the practically cognized present is no knife-edge, but a saddle-back, with a certain breadth of its own on which we sit perched, and from which we look in two directions into time. The unit of composition of our perception of time is a *duration,* with a bow and a stern, as it were—a rear-ward- and a forward-looking end" (qtd in Moore 63).

[49] This repetition also evokes the gesture of remembering. The doubled motion or re-enacted moment is also the trademark of the *mise en abyme,* which will be discussed in Chapter 3.

The new media continue this process of perspectival fragmentation—or quantisation—that Einstein sees in information, Benjamin and Deleuze in film, Bergson in memory, McLuhan in television, and Virilio in time. The materials of the arts have changed, losing their substance if not their materiality as celluloid and the airwaves have been displaced by code, but this transition and trajectory was audible throughout the last century to those who did listen. For instance, Johanna Drucker examines the merging of the corporate mass aesthetic with the experimentation of the avant-garde in typographic art and design in the first three decades of the 20th century. Typography, Drucker argues, renders text digital and imagistic, foregrounding the discrete unit of the page as an organizing principle, and introducing the spatial into its syntax. In these same years, according to Michael Heumann, the Italian Futurists saw in the information overload of noise, speed and technology the new sensory aesthetic of the machine age. More recently Friedrich Kittler reassessed the 19th and 20th centuries to uncover the quantising effects of education, communication, psychophysics, and psychoanalysis as the forces that splintered language and perception into bits, into the technologies of the senses, including optics, acoustics, motor impulses, etc, and from there into Saussure's linguistic components, signifier, signified and referent (Kittler, 1990, 216). Lev Manovich in *The Language of New Media* looks at the further fracturing of language and art (particularly film) that has occurred in the post-war period, producing the ultimate modular form: digital computing. The language of the new media is the syntax of the structure of electronic objects. Tim McLaughlin has observed that: "A materialist culture places its memories in objects: the album, the anthology, the dictionary, the encyclopedia, the atlas and places these objects in institutions: the library, the gallery, the museum, the office, the home (McLaughlin n.p.). This form of collective memory is the archival impulse. These objects and memories are personalized—not owned so much as animated by memory—and are situated in place, space and time. In this sense, they are embodied by memory and as memories. Similarly, when the Patchwork Girl tries to construct a past for herself she does so with an exhibit of museum-like pieces glued into a scrapbook. She buys Elsie's past and in the bargain acquires a photo album: "Her past was perfect for me. It had little black corners and layers of snapshots sliding loose on top of the earlier grid. It had friends cut out and pasted back in. It had notes on napkins, ticket stubs, and postcards of mermaids" ("photo album"). The monster constructs her purchased past as moments in time invested in objects. It is no accident that the other two texts, *Califia* and *The Maze Game*, also involve a search for lost or forgotten objects, origins, and connections. Whether a grammar of cherished relics, imagined objects along a promenade through a cathedral or hyperlinked stops in textual space, this is the quantised discourse of memory. The typography of print-based art, the noise of the machine age and the design of new media objects carry extra-contextual or extra-linguistic messages—like flashbacks—that transpire outside of either text or image.[50] The old media follow the tradition of the corporate mass aesthetic that Drucker identifies while new media incorporate the logic of post-industrial society that values individuation over conformity (Manovich, 2001, 41). The remediation of the new media, Manovich argues (after Bolter and Grusin), alter and replace all earlier cultural categories and concepts (2001, 47). As a result, the new media are always already in the process of birthing new organizational structures.

Sigmund Freud, William James and Henri Bergson saw the combined mental and physical functions of the cerebral hemispheres as part of the mind and brain's biological matrix (Heumann n.p.). According to Michael Heumann, these three thinkers cast this "physical network" in purely mechanistic terms. Bergson says: "the brain is no more than a kind of central telephonic exchange: its office is to allow communication or to delay it. It adds nothing to what it receives; but, as all the organs of perception send" their motor messages to it, it is the central nexus for all bodily signals. It is in actuality a kind of switching station connecting "a great multitude of motor tracks … simultaneously" (Bergson 30). As Bergson reveals, this intensely problematic model that constructs us as mindless automatons was still a conduit flowing with analog data. While Bergson, Freud, and James saw the machine in us, it was not until much later in the 20th century that we in the West began to see ourselves (as native peoples and others living close to the land have always done) as an organic and ecological matrix networked with the world. We are, of course, as Kittler, Foucault and Derrida have argued, never entirely separate from the machineries of the system we are a part of, but by contrast to Bergson, Freud and James, new media artist and poet Stephanie Strickland describes the chaotic properties of contemporary information space this way:

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[50] Just as McLuhan, Foucault and Derrida observed that we can only understand the system from outside, so Óh-T'bee in *The Maze Game* struggles to understand the language of Glide, and to grasp the fact with her sentient circuits that neither is Glide in the Game nor is the Game in Glide either (iv.23-2). The Glide language actually occupies a Baroque space of emotional and spiritual transcendence known as the lily-mind.

> The internet itself is a complex system with emergent levels. Because phone calls used for fax and Web access have statistical characteristics dramatically different from a typical voice call, as the phone system shifted from a voice to a data network it also shifted from a fully centralized, fully regulated system to one with fractal, or chaotic properties: the interbeat intervals of its interpacket spacing are as "bursty," or multifractal, as the heartbeat, and equally threatened with congestive failure (Strickland n.p).

There can be no doubt as to how completely this marks a shift in our consciousness from the analog to the digital,[51] and from perspective to opticality. More recently still in the study of memory in the brain, scientists have come to believe that the brain is a distributed network and that neurogenesis—the formation of the neurons that encode and store memories—occurs throughout the brain rather than in a single, particular place. Memories are, of course, stored in the brain, but their function is a quality of mind. Memories are our interior place and perspective on the world. The mechanics of neurogenesis is a cognitive model for consciousness, but it is also the map of the matrix of the digital narrative, or of life itself. More importantly, since memory is encoded spatially in the brain, navigating information spaces is very like searching in our minds for a memory that eludes us momentarily. Therefore, our maps of memory are cognitive webs that we traverse, forging connections as we trace the contours of the form in the interconnected domain of mnemonic association.

The mind is also no longer considered to be a part of the brain, but is emergent from the biological neural net. Emergence is a property of chaos theory (as I have already explored in the context of narrative as an emergent property of the electronic text); it is something that arises unexpectedly from the random soup of the system, the microbe in the primordial goo, and is wholly contextual, grounded in its own organic architecture. If mind is an emergent property of the system as a whole, then the biology of the brain, like the hardware—and wetware—of the net, is the engine that generates it. Mind is the interface between the body (including the brain) and the intelligence, and it is the mind, not the brain, that we interact with as the skin of our engagement between our body's ideas and our own—our self's. This is not so much a point of view as a "point of being," or so media theorist Derrick de Kerckhove argues (1997, 84). If our point of view is constantly in flux, if our point of view is fractal, then it is simultaneously all points of view and none of them. Therefore, our perspective is clearly ontological, more about being—or becoming—than about a fixed point in space. A point of becoming is multiperspectival, acting as the control center for an interface to track the speed of human cultural evolution. The speed of the interface is what we deem intelligence, just as computers networked together have not simply more but exponentially greater computing power. To technology, greater quantities of information contain a higher ratio of surprise and therefore more information. Redundancy makes meaning through pattern repetition whereas noise has a zero content of information. To our minds, data glut is smog or noise pollution that makes it harder and harder to make connections, makes it harder and harder to remember details, and forging these connections is by definition ultimately the function of mind. This is not a hegemonic system; there is no direct or predetermined route, no single, correct path, in the entropy of a topological network. Marshall and Eric McLuhan say that, "Data overload equals pattern recognition. Any word, or process, or form, pushed to the limits of its potential, reverses its characteristics and becomes a complementary form" (1988). This is the direction of the mnemonic gesture situated in place, space and time. This gesture is the obsessive overload, drawing everything into it. In *Archive Fever*, Jacques Derrida sees this as both the strength and the "trouble" of the "compulsive, repetitive, nostalgic" archive (1995, 90). It is rife with contradictions, secrets, plots, private thoughts, public records, balancing as it does in the gaps between family, society, state and selves (1995, 90). Its feverish nature arouses "an irrepressible desire to return to the origin, a homesickness, a nostalgia for the return to the most archaic place of absolute commencement" (1995, 91).

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[51] This is not to say that the analog has ceased to exist. The digital and the analog continue to co-exist side by side.

A discourse network, the archive welcomes contradictions without ever trying to rationalize them (that is the job of the archivist). However, while the electronic text fosters and documents the compulsion to remember in the surge of information overload, the engine that drives it is forgetfulness. For instance, in *Califia* Violet is the chief archivist of memory—afflicted as she is with Alzheimer's Disease, she can only physically remember clues that we as seekers of the fabled gold of the Amazon Queen, Califia, need to reveal the nature of the treasure we uncover in the process of navigating the text. Violet, like the archive, is liminal, composed of equal parts remembering to remember and remembering to forget. Violet is the archivist of amnesia—not a rejection of cultural memory, but a transposition into a present day relevance, a movement into a sensory, pan-perspectival state of remembering—virtual, visual, visionary. Violet is a seer, with one foot in both worlds, inhabiting the realm of prophecy, the author of sibylline leaves—once written they become nonsense.

Voyaging through time and space where the overloaded short term memory is at tension with the demands of reading the text, *Califia*'s wealth challenges us beyond our powers of absorption, testing our memory capacity through sheer excess information. As readers, we are forced to become a latter-day version of Maxwell's Demon. Violet stands as an inverse algorithm to the Demon's data structure. Where the Demon is the ROM of a mnemonic system, Violet, unable to retain information, can inhabit the present moment only as RAM, existing in the "second memory" of computing systems that fluid state always in the flux of immediacy. Aristotle said that the gesturings of memory, its changes, "create a nexus or node, the 'holding together' [upon which] the cohesion of a life is established" (qtd in Krell 19). While for us memories determine who we are, for Violet and the Demon, as amnesia and anamnesis, their task is their own identity. They can exist only as correlates like the data structures and algorithms of computer-based storage. Manovich says that the computer reduces the world to two building blocks: data structures and algorithms which exist in a symbiotic relationship. The more complex the data structure the simpler the algorithm and vice versa (Manovich n.p.) ROM without RAM becomes chaos or inaccessible information. The fluidity of Violet's mnemonic hyperspace and virtual voyagings—like the Patchwork Girl's and Óh-T'bee's—opens a door on a new cyberfeminist model for historical telling and prophetic vision.

Let us take a step back and reconsider the architectural structure of the stored data blocks in the archival corridors of electronic narratives. What shape governs the temporal and spatial architectures of the electronic narrative? How does the text remember itself and prophesize its own future? Manovich identifies two key principles of new media objects that inhabit the interconnected spaces of the matrix: they are 1. composed of digital code and 2. modular in nature. Once an object is digitized—rendered in mathematical terms—it becomes programmable (2001, 27) and infinitely repeatable. This programmability is a unique feature in the history of art. Add this to the fact that modular objects are independent but recombinant in their infinite nature and some pretty extraordinary changes in the concept of the work of art emerge. The self-same structures of new media elements are collections of discrete samples reassembled, and scale independence and self-similarity are features common to digital objects. An object that is scale independent can be reproduced (or remembered) identically in any size (at the same proportions): each "part is not simply a fragment of the whole, it is a fractal out of which the whole unfolds and in which the whole is enfolded" (Davis and Sumara 828). Evoking the collective nature of the quantised archive, self-similarity is a quality that exhibits trademark features throughout the object at all scales. This is the antithesis of a print-based linear structure, for "foundations, structures and hierarchies are challenged by notions of infinite regress, nestedness, and implicate orders" (Davis and Sumara 825). In shapes rooted in complexity, that is self-same structures, there is no way to reduce the object to a simpler form. Or, to put it another way, the network is the electronic text just as the text is the network. What is most important about this modular architecture in the context of electronic fiction is that by organizing data non-hierarchically, it smashes the expected framework of print-based structures (as the encyclopedia did before it). Once nonhierarchical and associational ordering comes to the fore, it has a dramatic effect on the new media arts. Jed Rasula has observed that the "truly progressive function of the encyclopedia … is twofold: to introduce order and recompose it through an active engagement with disorder (13). This shuffling is an "'operational poetics'" that "'comes not from accumulating content but from provoking an act of thinking'" (qtd in Rasula 13). Evidence of this non-hierarchical orderly disorder is apparent in *Patchwork Girl, Califia* and in the *Glide* website—texts that could not have been realized or conceived of within the confining linear structures (and technologies) of the page, for these are texts that take the mnemonically encyclopedic nature of narrative and render it as a literalization of information overload in the spaces of the cosmopedia.

The new media are also composed of their own constituent parts. They have four basic components or modules: the code, the link, the node and the matrix. The link and the node are spatial markers, both structural and dynamic, that provide the means of movement for the browser, and will be discussed at length in Chapter 4. The code and the network on the other hand are the shape, structure and syntax of information in space. The matrix is the primary architectural feature of information space. Unlike other organizational structures, the matrix in both virtual and actual ecosystems has no foundations, "no fundamental constants, laws, or equations. The material universe is seen as a dynamic web of interrelated events. None of the properties of any part of this web is fundamental; they all follow from the properties of the other parts, and the overall consistency of the interrelations determines the structure of the entire web" (Capra 39). Furthermore, the network has other networks nested within it as an integral part of its self-same organic structure. Code is both frame and material in the aesthetic work and is often visible within boundaries of the text itself (particularly in net.art, a school of works which self-reflexively examine the conceptuality and materiality of the new media, exemplified in works by jodi.org and Olia Lialina), forming a metacommentary on its own writing. Even, however, when it is not intentionally visible, its existence and syntactical properties frequently become a part of narrative. Code is instantaneous and linguistic and is, therefore, a component of both communication and of noise. Noise is a key component of the new media. How information gets interrupted and broken up into bits is as much a part of the story as its transmission is. The aesthetics of delay that is the built-in wait for information to arrive over the network is a part of the structural noise of the form.[52] The encoded data that is received is machine language and how machines talk to each other or how we talk to machines are also structural components of the text. Information itself is a social matrix linked to the post/human—how we communicate with each other or how machines communicate with us.

The navigational act of browsing backwards and forwards in space and time through an electronic, aesthetic object is a unique journey. It is unlikely—if not almost impossible—to visit the whole of a text in its unfolding and, even if we do, we navigate these works in our own particular order that creates a singular reading experience for each one of us every time we read it, not just the first time. Problems with searching and finding are foregrounded in new media aesthetics with information overload and our own limitations as it deluges our short-term memory. Some web.texts use the aesthetics of the new media to render the informational dimension visible. (See, for example, Brazilian web.artist and theorist Giselle Beiguelman's "The Book After the Book" or Australian Java aficionado Mez's (Mary Anne Breeze's) "data][h!][bleeding texts"). Beth Stryker and Sawad Brook also undertake this kind of networked exploration of the World Wide Web with their database text "DissemiNETion" that enacts a diasporic space. They explain: "Creating a repository for personal and social memory, dissemiNETion uses web technologies to give visual form to the transactions (deposits, retrievals, and loss) through which we experience memory" (n.p.). Memory is of course cultural and, therefore, by nature diasporic and mutable. It is also a visual, rather than a textual, practice. The visual forms of perspective and opticality are other methods for storing and processing memory as I have discussed. Problematizing the quest for "new technologies to store, organize, and efficiently access these materials" (Manovich, 2001, 35), database structures and information architectures, as much as the original archival impulse, become the *raison d'être* for these texts. A browser's focus thereby shifts out of necessity as she moves through them, foregrounding the navigational gesture in space and time in the work.

The rise of the database as the new pre-eminent cultural form is evident in its variability, in the prevalence of information customized on demand. (Manovich, 2001, 43). Customized forms intrinsically change the work of art and its, in theory at least, single ideal view. This separation of work from interface or content from medium is a difficult concept to understand, and explains in part why the new media are so often misunderstood as mere repackagings of older forms. It is variable architecture or interface rather than content that becomes the distinguishing feature of the net.wurk. Electronic hyperlinked narrative is one such place where the text gives the browser the option of a variable in the place of every constant (Manovich, 2001, 43). These are works that unfold, that change every time we read them (at least within the boundaries of their own frames). The interface does not predetermine the content,[53] but significantly constrains and controls a browser's options in terms of how she can navigate. Automated hypertext links are a way of conceptually mapping the spatial relationships between objects. These relationships, these structurings, are independent of content in hypertext (but not in editorial input) just as there is a clear separation between algorithms and data in programming (Manovich, 2001, 41). It is the excess of choice—information overload—that produces the trademark anxiety for the browser. When every feature of an object and its cultural identity can remain open—"[s]ize, degree of detail, format, color, shape, interactive trajectory, trajectory through space, duration, rhythm, point of view, the presence or absence of particular characters, the development of plot" (Manovich, 2001, 44)—then the nature of the stories that get told radically alters. These texts are not constrained by material dimensions or actual containers and so they can unfold, can indefinitely expand their dimensions to include as much density of information as the author or browser wishes.[54]

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[52] Walter Benjamin, seeing the standard academic tract as "'an outdated mediation between two different filing systems,'" eventually chose the essay as the form most suited to his needs: "incomplete, digressive, without proof or conclusion, in which could be juxtaposed fragments, minute details ('close ups') drawn from every level of the contemporary world" (Ulmer, 1998, 97). This was what Benjamin called the "'art of interruption'" (Ulmer, 1998, 97).

Transcoding is another way in which narratives—what Manovich calls the cultural layer of the new objects—are being realized in new ways. The variability and the data structure of the computer layer dramatically changes notions of art, story and aesthetics once information begins to be expressed visually and conceptually rather than logically (i.e. linearly). All aesthetic elements get transcoded or translated into another format in the new media. If the medium is the message as McLuhan maintains, then the message being carried by the networked textual object must be irreparably changed by remediation, transcoded by the shift to modularity and variability. For Bergson too translation was one of the gestures of remembering. The radical transformation in this transition to the conceptual mode of mapping necessary in the new media is the end result of digitization, but also ultimately an emulation of the quantised nature of the cognitive functioning of the mind. And the notion of the *objet d'art* as something that is programmable and interactive is not entirely unprecedented, as Manovich claims (2001, 47), but—like Happenings and Situation-based art—privileges the noisy overheard snippets of constantly shifting subjective experience within a multiperspectival environment.

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[53] Paradoxically though, the interface does determine the shape of the whole and, functioning as a discourse network, ultimately limits or dictates what it is possible to say and where and how it is possible to travel within the framework of the whole text. Jackson's, Coverley's and Slattery's texts are constrained and created by the software that they were written in. The limited, monochrome, text-biased frame of Storyspace creates a *Patchwork Girl* that is primarily textual in nature. Coverley's multimedia is situated within the Hypercard-like interface of Toolbox. Slattery's *Glide* is made possible by the generous nature of Director, incorporating the flexibility of Java, C++ and XML into its form. (Thanks to Katherine Hayles for this observation.)

[54] This is a feature of Gottfried Leibniz's studies that Gilles Deleuze dubs "Baroque mathematics" (1993, 17).

Information overload is the conjunction of the gendered, textual, visual and sensory realms. It is the place where words and images lose their meaning and become in/comprehensible and un/recognizable. (Witness Bergson's doubled gesture once again.) Entropy is multiplicity and it deterritorializes us in space, giving us a sense of dislocation and disorientation and making it difficult to navigate or read our senses. This is the crux of data glut. It is always already about navigation: the navigation of a multiplicity of sensory stimuli. Because bodies navigate in space, they are always already in a state of flux. Sandy Stone sees this morphing and migratory state as an inherent quality of bodies in space-time. For Stone, the body is always multiple (this will be discussed at length in Chapter 3) and in a state of transition or, as a discursive body, in a state of translation. She says,

> The multiple is the enantiomorph, the opposite, of the unitary monistic identity that location technology produces. The multiple is the socializer within the computer networks, a being warranted to, but outside of, a single physical body. The body in question sits at a computer terminal somewhere, but the locus of sociality that would in an older dispensation be associated with this body goes on in a space which is quite irrelevant to it (43).

This is the fluid body of the browser in circulation in a social matrix. Likewise, the archival text is therefore a social, embodied and proprioceptive form. The nomadic link for bodies between moments inserts immediacy, instant access, direction, transportation, immersion and associational cohesion into the navigation of the form, and so browsing actually spatializes the text, endowing it with dynamic texture. It invites the browser in as an active element, blurring the assumed boundaries between interactor and author, where she (re)constructs the text through the choices made in her navigational gestures and choices like a *rapport d'adresse* between women, a performance that requires a response (Scott *Spaces* 52). The new media are rooted in a continuous present of the immediacy of our visual and navigational choices and doublings back, privileging subjectivities, polyvocality and ruptures in space-time. It is the privileging of a matrix of associational leaps between memories or words or images or all three. As a spatial and temporal structure, the electronic text embodies sensuous fluidity as a dynamic medium that is perpetually in motion. So Jackson, Coverley and Slattery too construct feminist landscapes in their fictional worlds—nomadic, rooted in multiplicity, sound, voice, body and the senses—that are networks in a state of organic and mnemonic flux.

In *Patchwork Girl*, for instance, the monster intuits that she is already a part of a social matrix, that she is married to the flesh of her progenitors just as all members of humankind are related to each other. In "universal" she warns her readers, "You will all be part of me. You already are; your bodies are already claimed by future generations, auctioned off piecemeal to the authors of future monsters. These monsters move among you already, buried in your flesh…" This makes us all monsters—or fictional constructs at the very least. Acknowledging her own innate multiplicity, she continues: "Many monsters, or one: if I am made of some of you, I could be made of more. If I am large, I could be larger. If it is hard to tell where I was born, I will be born again and again: if it is hard to tell where I end, I shall continue" ("universal"). And so she does, spinning her (theoretically) infinite number of networked selves and fictions ever larger until she is at one with the encyclopedic cosmos. Cursed with both immortality and the inability to forget, she continues to dream of death. She creates a jungle dreamscape where the constellated workings of the ecosystem act as digestive juices to enact her decomposition (rather than her death), permitting her to be transcoded back into an intertext for the organic world. She dreams:

> Before long the blood in my veins will be the blood of the body jungle. My skin will fall away in scrolls, my palms and fingerprints will drift down like aged leaves. My veins will unweave and reweave themselves into the network… I do not know how my skull will open, or if I will still know myself when my brain drifts up to join the huge, intelligent sky ("body jungle").

As yet another expression of the Alexandrine Dream, the Patchwork Girl yearns to be interwoven with the informational fabric—the memory—of the universe just as she is intertwined with her past selves, their skin and their memories. Madame Q, the spiritualiste, echoes the monster's sentiments, stating that memories are the interstices of our identities, with our past experiences forming the very fabric of ourselves: "We are who we were; we are made up of memories" ("She goes on"). No one except the monster herself can throw this perspective so daringly into question (and she does explore it as an issue of complex genetics in "body ghosts"[55]). The spiritualist, however, who cons phantoms out of the ether of her imagination and out from under her mechanical table for the entertainment of her 'marks,' tells them: "We are ourselves ghostly. Our whole life is a kind of haunting; the present is thronged by figures of the past. We haunt the concrete world as registers of past events, we are revenants. And we are haunted, by these ghosts of the living, these invisible strangers who are ourselves" ("She goes on"). Of course, it is the Patchwork Girl who is actually re/visited by spirits, being a natural magnet for hauntings and possessions of all kinds.

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[55] The monster observes:

As a genealogy of five generations of Californians, *Califia*'s social matrix is far more concerned with the hauntings of half-forgotten family secrets and with the past and present location of objects and documents than with spiritual visitations. The generations have been woven together—and kept apart—by this passion for secrecy that has come with hiding the treasure of Califia. For instance, Augusta's search for the lost 'comets,' Mexican Eagle gold coins known as Kruggerands that her father buried on the family property, has been foiled by her father's obsessive moving and removing of them within his yard. Other items of possible and questionable value include "the almost forgotten piece of worthless land, the oil stock certificates languishing in the strongbox, the Bette Davis jewelry collection, the Baja Mission gold mine map" ("Augusta" 3). Whether these things have any real value is part of the secrecy that comprises the histories of the family members. Rather than being an inheritance, these stories have become the family myth, "fragments of fanciful legends, distant and imaginary" or "the wishful thinking of a bunch of eccentrics" ("Augusta" 3). Often the truly valuable items are deceptively innocuous, such as the scrap of blue blanket that the Kruggerands were wrapped in. It is a piece of the secret map detailing the alleged location of the lost stash of gold. The goal of this electronic novel is to unravel the connections behind the secrets surrounding these objects and items of unknown value: the existence of August's great, great grandfather's lost mine, the reasons behind the mystery of John Summerland's suspicious death, the reason for the Chinatown fire, the existence of the eight charm stones, the meaning of the markings on the blue blanket, Aunt Rosalind's secret history, Nellie Clare's so-called disappearance, the lost recipes for healing and ritual bathing and on and on.

> Our bodies are haunted as well as our minds. We are haunted by our uncle's nose, our grandfather's cleft palate, our grandmother's poor vision, our father's baldness. There are ghosts in the form of recessive genes, that never show themselves to us, but might appear to our children, to the seventh son of a seventh son. Red hair, suddenly out of a clear blond lineage ("body ghosts")

The driving mystery in the text is excavating the location of the lost fortune from the sediments of secrets laid down over generations. Its location has been encoded in the constellations—a visual language based on the navigational language of string games like Cat's Cradle—that have been stitched in the blanket by Willing Stars. She was a native Indian of the Chumash tribe who was Augusta's great, great grandmother. Augusta, Calvin and Kaye must not only learn to read the language of her embroidery and lost people, but also must translate and transpose the names of the constellations on to the maps of the gold mines. So, for example, the design 'two peaks' indicates the 'Liebre Twins,' 'mountain split in two' indicates the fault line, 'it sits down below' is the location of the gold, and the 'the skull is broken' represents an earthquake-related cave-in and the last known location of the gold. Willing Stars and Augusta's mother Violet were both repositories of information for these encoded secrets. It is Violet who shows the three of them where the correspondences lie between Willing Stars' map and the locations of the mines: Alkaid is the Hart Mine, Alcor is China Diggings, Alloth is Ernie Deb's backyard, Merak is Liebre Spring, and Dubne is Agna Escondida. The real treasure that they unearth in this search, however, is not the gold, but the familial connections and the accompanying treasure of buried stories.

The text is shot through with connections to unofficial histories, diasporic lore, alternate lifestyles and political organizations. This is not the usual history of California as we are accustomed to hearing it. The intrigues, murders, blackmailings, robberies, swindlings, illegitimate births, interracial marriages and acts of genocide are surely the bedrock that California was founded on, but these are the tales that do not generally make the official record books. While Nellie Clare Beveridge (whose identity and whereabouts are mysterious) secretly acquired the land that held the sites of the Summerland and Beveridge mines, she also publicly followed the unsanctioned teachings of Madam Blavatsky and joined Aimée Semple McPherson's congregation (Nellie's Dance 3). Rosalind Summerland, on the other hand, who whiled away her youth practicing her archery and attending opulent parties at the Hearst Castle, has erased whole swaths of uncomfortable historical detail from her past. Unlike Violet who cannot tell, Rosalind has chosen to remain silent about the identity of Calvin's grandmother (?). Her secrecy is driven not by greed or forgetfulness but out of a revisionary desire to create a more seemly history for the family. Her impulse is therefore to create a fiction:

> Rosalind seems to be rather good at arranging narratives to hide secrets. So expert perhaps, that she has buried whole episodes in cold storage, in packages without names. Secret keeping is one way of coping with realities—mistakes, regrets, things you can't do anything about and shouldn't matter any more ("North Point" 4).

When she divulges the truth of Nellie's role in the family narratives, then pieces begin to fall into place, including the whereabouts of the eight charm stones—Willing Stars' lost opals. The treasure that has ultimately been unearthed though is the lost familial connections and truer blood bonds arising from the shared labour of mapping the matrix of a family so interconnected with land, time, living history and each other. The narrators tell us that "Our hope is that as you choose your ways among the paths, you will discover more than we know. In the end, your created stories will determine the real location of the treasure of Califia" ("Roadhead"). It is therefore in the act of storytelling that we, as browsers, become active participants in the search for and creation of a narrative treasure of a shared network.

The networking that occurs in the Glide language and website and in the print novel, *The Maze Game,* as I have already mentioned, is also complex. In the novel, the language of the lily is for the Glides multifaceted, acting as "a navigational system, signaling to each other over the watery habitat of the giant blue water lilies whose pollen they harvested; as a poetic gestural language; [and] as a secret code" ("Architecture"):

> The game which defines their culture—the Dance of Death—is played on mazes of glyphs. Game moves and strategy are described in Glide terminology. Composition and translation in Glide is considered to exercise the cognitive function of making metaphor, which Glides believe increases the connectivity between minds, internally and socially, and which they link to creative thinking in general ("Architecture").

The four minds—island-mind, gut-mind, sea-mind and lily- or Glide-mind—are a means of cognitively navigating the sensory field of the body in space-time and performing the refusal of memory. As Dancers, the characters must inhabit an embodied present moment, not as means of denying or exiting history, but as a way of embracing their sensory interface with the world. The island-mind is the rational mind that is key to the Chrome Dancers' logic, the gut- or body-mind is emotional space and the intuitive instinctive realm of the Bods, the sea-mind is *chora*, the space of dreams and memory, creativity and metaphor that the Swash Dancers inhabit, and the Lily-mind is the Glide mind of extra-temporal manipulation and space-time interconnection. Where the four Dancers of the novel break the traditional Game mould is in their refusal of a blinkered, single perspective and in their desire to marry the different kinds of minds. Traditionally, the different classes of Dancers have kept apart, dealing mostly with their own kind. The members of the Millennium Class, however, blend methods—and share beds—to find more balanced ways of moving not only on the game griddle but in their lives as well. The cyborg Angle finds ways to balance between the island-mind, the sea-mind and the lily-mind to exit the world of the Game (iv.8-8). Daede, the Swash, opts out of being a

Dancer and becomes the best Player in the history of the Game precisely because he can play from all perspectives, in all styles.

T'Ling as a Glide has the best understanding of the complexity of the different minds. The Glides slide blindly through space, rejecting vision because of its insistent dependence on the frontal and a limiting perspective. They confuse their opponents by appearing the same from every direction, by harnessing movement so that they seem to be twinging (moving in two directions) all the time. This feint means the Player cannot predict the direction of their next move. Instead Glides move by feel, refusing to be blinded by illusion, trusting their feet over their eyes as a mode of travel. T'Ling expands on this ability over and above the usual dependence on the Glide-mind. Her teacher, the Dancemaster Wallenda, remarks that at first he thought, "T'Ling was having difficulty with blinding, the exercise beginning the Glide's weaning from sight-dependence," but he gradually begins to realize that instead "She was developing wide-angle vision to the degree of a Bod or a Swash; I could only catch her peripherally—not an encouraging tendency. Any dependence on visual would bias her to relative north, or frontal, movement, increasing her predictability" (i.11-4). The Bod and Swash viewpoints originate in the gut-mind and sea-mind respectively. Incorporating these allows T'Ling to integrate the four minds more completely than any Glide before her in her game play. This kind of multidimensional motion by the browser births fractal subjectivities for her as well.

Assuming multiple subjectivites and perspectives, however, while being key to the different kinds of knowledge necessary for navigating in the real world and in the new media, do not automatically endow knowledge. Óh-T'bee, the computer that keeps watch over the world of the Game, has access to all data and information, but initially cannot make the leap to applying knowledge to Game play. Glide, the language, remains a mystery to her. When the Outmind asks for assistance learning it, Loosh, a former Glide champion, laughs:

> "I thought the Outmind knew everything. You have the complete records on Glide—every game-maze, every name for every maze situation for every move for each of the Sets. You have every interpretation of every game, the interpretations of the interpretations. All the Glide poems. All the Glide music, from Wenger's on down. Every 3-glyph oracle ever asked. Most of the questions that prompted the asking. What the person, Dancer or Life—did with the result" (iv.9-1).

But bodiless Óh-T'bee believes that she lacks the ability to enter the Glide-mind and so she remains trapped within the confines of the Game without ostensibly being an active player. Like T'Ling who "trusted the Lily was a kind of knowledge even if [she] could never understand its meaning" (iv.28-19), the Outmind must learn to trust the lily-mind.

While she has sentience, she lacks the intuition that comes with the organic connection that was so transparent to the original Glide slaves as they moved across "the shimmering lily pond, the world where every element spoke, and told its meaning, unto itself and connected to all the others. … And the shifting pattern of lily pads over the pond—it was all a maze of Glide traces. The maze clearly had meaning, even if only the Glides—and the lily—understood it" (i.20-4). Like Angle, Óh-T'bee must find a way to step outside of the Game in order to come to a full understanding of her contradictory and complementary actions and her role in the history of the Game itself. Is she a Dancer or a Player? Can she be impartial if she is archivist, scorekeeper and the mechanism casting the glyphs for every Game? She must learn to incorporate the meaning of the glyphs with her actions in the textual spaces. Like the new media's continuous present tense and membrane of sensory immediacy in vision and navigation, Óh-T'bee must learn to privilege her myriad shifting, conflicting and complementary subjectivities and perspectives across all of the ruptures in place, space, and time.

Complementarity is a concept drawn from quantum mechanics. It is used to describe the paradox of the interplay of particles and waves in light; these properties are both mutually exclusive and complementary (Zukav 93), and complementarity is also the interplay between the linear lineages of text (in irrational, disruptive, thematic or associational ways) and the fluidity of image, space and nonlinguistic components. It is equivalent to the snapshots of memory that resurface unexpectedly in our minds through sensory triggers, association or connection. Like the duality of mind and brain, intelligence is a property of hybridity, of the interaction between biology and thought, between mnemonic organization and storage and specific recall or retrieval. However, the mnemonic properties of the electronic text (like the Patchwork Girl, a genealogy and Óh-T'bee) are greater than the sum of its parts. Derrick de Kerckhove says that "hypertextuality means interactive access to anything from anywhere" (xxvii, 1997), which bears a particular resemblance to Thomas Pynchon's definition of paranoia in *Gravity's Rainbow*: the realization that everything is interconnected. But hypertext is, de Kerckhove continues, like digitization, a "new condition of content production", and so "hypertextuality is therefore the new condition of content storage and delivery" (1997, xxviii). The significance of this implementation of hypertextual principles in the World Wide Web in particular is the unprecedented scope—it is global (1997, xxviii): "The principle of hypertextuality allows one to treat the Web as the extension of the contents of one's own mind. Hypertext turns everyone's memory into everyone else's and makes of the Web the first worldwide memory" (1997, 79). The same must be said of an electronic text, which can be navigated in a potentially infinite number of ways, providing original but complementary experiences for each interactor. Of course, our subjectivities are our own, but the text is communal, and, like our memories, our point of becoming is both informational and experiential. Our point of becoming—or our trajectivity in space-time—is the site of information storage *and* retrieval. Memory is time and time is to Nietzsche, Bergson, Deleuze and Grosz the "force of becoming" itself (Grosz, 1999, 3). Hyperlinks have the speed of memory (and we are in a constant mnemonic feedback loop), but these electronic links are allegedly more reliable than us since they lack the muss and fuss of our emotional associations. Theoretically, the machine is us, programmer Ellen Ullman says: "We believe we are making" the machine "in our own image. We call the microprocessor the 'brain'; we say the machine has 'memory.' But the computer is not really like us. It is a projection of a very slim part of ourselves: that portion devoted to logic, order, rule, and clarity. It is as if we took the game of chess and declared it the highest order of human existence" (Ullman 89). That may be true of the computer itself and its operating system, but it is not true for the aesthetic text—nor indeed does the electronic text have any such aspirations.

Hypertextuality points, de Kerckhove says, toward the possibilities for a single global archive—one giant information storage and retrieval site, a silicon Library of Alexandria of inconceivable magnitude, the Alexandrine Dream once again. It points toward the possibility of never forgetting anything again or, more exactly, of never needing to remember anything in an unmediated fashion. It points toward the possibility of pan-connectivity. Here is Pynchon's paranoia to be sure, but what electronic *fiction* suffers from by design, as opposed to these informational archives, is access. Not too little, but too much. It is submerged in noise. No information can exist without disinformation, Paul Virilio says (1995 n.p.; and more and more the two are in fact indistinguishable), and the complementarity of the electronic novel in space and time requires us to continually exist in a state of reorientation in relation to the disorientation of the matrix. Our memory cannot possibly hold all of the information we navigate in virtual space and so we become dependent on the machine's connections. Those connections, however, only drag us deeper into the depths of associational logic, deliberately disorienting us still further, requiring us to forget. Where hyperthought equals the speed of mind and memory in these spaces, we are perpetually off balance and drifting, or leaping, otherwhere in space and time. In an age where speed is the pre-eminent concern of transmission, Paul Virilio's updating of Marshall McLuhan's catch phrase at this later stage of the Information Age rings true; he says it is "*the velocity* of the medium" that is the message (2000, 141); likewise Virilio proclaims that information's meaning is contained in "the *rapidity* of its feedback" (2000, 143). What we must ask, therefore, is what is the function of data glut in these fictional spaces? Speed is not the primary concern once we set data transmission aside to browse within aesthetic objects. In the work of art, information overload is not accidental or simple noise, but an intentional creation. Here information overload is designed to inhibit the organization and storage of memory, and privileges instead our sensory engagement with the present moment. These are spaces not of remembering, but of living memories in real time. These are the spaces of mind: conscious engagement of a means of navigating the world or the world of the text. Data overload functions to keep us perpetually at the point of becoming, holds us suspended in a single instant in what Paul Virilio calls a state of trajectivity, a dynamic state between the moments of the subjective and the objective (1997, 24).

The nature of art has clearly changed in dramatic ways as much as we have with the advent of digitization. Art and we ourselves have been remediated by technology. The fact that information has also been revolutionized just as dramatically is something that is harder to see or grasp the implications of. Where art has seemingly lost its materiality in this transition, becoming surface-based (image fixated) and more and more informational, information has acquired meaning, shape, depth, orientation and aestheticized form, becoming more and more art-like. Jean Baudrillard sees these changes as evidence of the 'hyperreal', a loss of the distinction between the virtual (or artificial) and the real created by the encroachments of the media on our daily lives. We also might see them as evidence of the mediations of Taylor and Saarinen's 'netropolis'—the informational envelope that surrounds us and mediates our perceptions of the real and the virtual worlds—altering reality like art all around us. Baudrillard says:

> Abstraction today is no longer that of the map, the double, the mirror or the concept. Simulation is no longer that of a territory, a referential being or a substance. It is the generation by models of a real without origin or reality: a hyperreal. The territory no longer precedes the map, nor survives it. Henceforth, it is the map that precedes the territory—PRECESSION OF SIMULACRA—it is the map that engenders the territory (original emphasis; 1983, 2).

The media arts do not create or communicate the real, Baudrillard argues, but instead give us only simulacras, simulations without originals. They revel in the creation of spectacle and realistic effects for Hollywood blockbusters, at one end of the scale, and at the other seek to document events in 'real time', or to create 'reality TV', or render the real—as in the ultimate spectacle of the bombing and collapse of the twin towers of the World Trade Center—into the apparent artificiality of simulation. This is a sign of our times in a new media age when mediated reality seems more real, more perfectly modulated, than the imperfections of the real played live.

This transition is a direct result of the shift from an industrial-based society (an analytic method) to an information-driven (systemic) one. By reducing the real to visible fundamentals or the quanta of interlocking components, the new media arts can convincingly simulate, but never recreate, reality. Simulation, Baudrillard says, is "opposed to representation": "representation tries to absorb simulation by interpreting it as false representation" whereas "simulation envelops the whole edifice of representation as itself a simulacrum" (1983, 11). Simulation is therefore a new kind of representation, and an embodied mnemotechnics. It is a visual representation of networked mediation and the mechanics of memory in multiperspectival space. In fact, it is this very visibility, this breaking down of traditional barriers into too much visibility—complete submersion in the information and communications media—that Baudrillard sees as one of the 'obscenities' of the new media ("Ecstasy" 131)—as obscene as the subaltern subject speaking out. In turn, when the aestheticized medium visually imposes itself on us (as they do in Happenings and site-specific works as well as in the electronic text), that is when memory spaces become dynamic and interactive.

The hyperreal (and the spectacle as defined by Guy Debord) are visual events connecting our visual perceptions to the public and private ways in which we shape and remember reality. Kirschenbaum summarizes Baudrillard's views on reality and representation:

> Digital objects are particularly pre-disposed to the simulacral, because they can, in principal and often in fact, be replicated with no discernible loss of quality or integrity… The symbolic economy of the simulacra culminates in a state Baudrillard terms the hyperreal, in which all distinction between authenticity and artifice has been eroded by representational technologies, such that the artificial emerges as only another reality (Kirschenbaum IV n.p.)

This sense of the hyperreal is a state of mediated artifice, realer than real, fusing simulation and reality into a new dimension that is accompanied by the loss of material objects as they are transcoded—or mediated—into data objects in aestheticized information networks. Hyperreality is mediated reality: it is the matrix of the electronic text as much as other media (Baudrillard, 1983, 125). These networks further erode the real, resulting in a loss of public and private space. A loss of public and private space occurs because they are in fact situated: placed in time and space and inhabiting a state of being ("Ecstasy" 130). The public and private disappear in the matrix just as the shifting roles of the artist and the browser, and the work of art and its interactor call into question "the site of art" itself (original emphasis,Virilio, 2000, 130).

The very notions of public and private are being eroded in our technological age. In "Blogging Thoughts" Torill Mortensen and Jill Walker identify the 18th century salon as something that "existed on the borderline between the private and the public; it was situated in private homes, but part of the public sphere being the site of the performance that was the salon-experience" (257). Similarly, they say, the newest form of web notation, weblogs, which unite conversation with the clarity of print,

> stand where the salon did between private and public. A blog is written by an individual and expresses the attitude and conviction of its writer; it is strictly subjective though not necessarily intimate. This doesn't stop it from being in the public domain, and being concerned about questions which are in the domain of public authority. Each individual can use weblogs as he or she feels fit, there is no tyranny of news values to decide what is worth writing about or, as the term is: what is worth blogging (258).

The Web and the Internet have consistently eroded the gap between public and private space, for there is no notion of public and private on the net at all. It is all simultaneously public and private.

The concept and practice of private space was born with the printed book. Prior to public education and widespread literacy, all reading was done in public and aloud. As the book became an affordable commodity, however, reading was translated in a private, silent act. In the same way that noise was born of the technological age, so silence and private space bloomed behind the innovation of glass windows. R. Murray Schafer says:

> The glazed window was an invention of great importance for the soundscape, framing external events in an unnatural phantom-like 'silence.' The diminution of sound transmission, while not immediate and occurring only gradually with the thickening of glazing, not only created the notion of a 'here' and a 'there' or a 'beyond,' but also introduced a fission of the senses (212).

When there were no windows to close, the community was invited in to listen; it was private sensory space with its glass barriers that created a need for silence and privacy. Derrick de Kerckhove argues that books created the sense of public and private space in terms of constructs of the 'self' as well (1995, 206). The interior world housed our 'private' self and our 'innermost' thoughts and privileged subjective and introspective thoughts and sliced our senses up into separate units. The externalized or public media, however—radio and television, film, the internet and the World Wide Web—allow us to participate in a kind of "collective imagination and collective thinking" (206) while simultaneously merging our senses in private space. We have a new awareness now in the Information Age of how the private informs the public and vice versa; they do not overwrite each other, but form a dialectical relationship. Similarly, the archive and the archival text, like blogs, are just such blendings of public and private space. Connective or hypertextual thinking engenders communities. We gain entry into the innermost thoughts of a narrator, sharing her privacy and intimacy as we browse, but this is also a collective text available to multiple readers and readings and varied forms of sensory engagement. It is a way of splicing our voice in with the narrator's own, but without making us the author of the work.

This process of constructing data objects in the private and public space of the electronic novel is a function of montage, Gregory Ulmer argues, which does not in any way produce the real (Ulmer 86). Montage, also known as assemblage, is a means of conceptualizing information and mapping ideas or narrative elements in collective, visual space. In the realization of the hyperreal textual object just as in the print-bound, intertextual object, Jacques Derrida sees an unending combination of private contexts that may be endlessly reshuffled to produce meaning and the public space of intertextual conversation. He calls this an "assemblage." His is a "schemata" for a general system and a "bringing-together" that "has the structure of an interlacing, a weaving, or a web, which would allow the different threads and different lines of sense or force to separate again as well as being ready to bind others together" (Derrida, 1973, 131). Montage, while a technique traditionally associated with film and television, involves the selecting and arranging of distinct shots into a networked whole and becomes more and more relevant as the Web becomes increasingly interactive and public. (Splicing and sampling in music create similar effects.) Montage is a spatial form of organization for the networked novel. It is also a means of superimposing separate (and potentially disparate) shots together as a single picture, and the name of the sequence arising from the whole process as well. Filmmaker Sergei Eisenstein saw montage as a tension between ideas, a dialectical organization, that opened myriad possibilities for conversation between images, contexts and forms of speaking (Lowe 127). Today we can clearly see these connections in the context of the complementarity of the matrix of information that is the Web and other digital media. We can also see its effects in the fracturing of subjectivities. For Baudrillard, information, objects and montage are interconnected, demanding as they do "that the receiver construe and decode by observing the same procedure whereby the work was assembled" (1983,120), but in a more public context. Objects and information assume myriad points of view, a montage, and break reality up into public messages: "simple elements that they have reassembled into scenarios of regulated oppositions, exactly in the same way the photographer imposes his contrasts, lights, angles on his subject" (1983, 120). Electronic fiction also follows this paradigm, allowing space for the senses and multiple subjectivites. Furthermore, according to Baudrillard, it is montage that underlies McLuhan's maxim 'the medium is the message': "it is in effect the medium—the very style of montage, of découpage, of interpellation, solicitation, summation, by the medium—which controls the process of meaning" (1983, 123). To Gregory Ulmer, montage is significantly a means of disseminating information borrowed from the disparate joinings of collage, the material transfer of information or objects from one context into another (Ulmer, 1998, 84). This is the same if somewhat more complicated process that we bring to the reading of electronic fiction. The shape and structure of Califia, for instance, clearly demonstrate the use of montage in its plot, visual design and construction.

Dissemination is by definition a nonlinear process, involving the diffuse and dispersed scattering of seeds or ideas into a matrix of fertile space. Likewise, collage, "the single most revolutionary formal innovation in artistic representation to occur in our [the 20th] century" (Ulmer, 1998, 84), is the precursor of montage, shattering the connection between representation and realism, and creating an interplay between otherwise discrete aesthetic and material elements (Ulmer, 1998, 84). Collage, in print or in virtuality, is the act of defining separate elements within an aesthetic text and "lift[ing] a certain number of elements from works, objects, preexisting messages, ... to integrate them in a new creation in order to produce an original totality manifesting ruptures of diverse sorts" (qtd in Ulmer, 1998, 84). These ruptures (or splicings of intertextual elements—an unfolding of intrinsic dimensions like Cubism's fracturing of perspectival space) are the gaps between data objects in information space and they are also an inherent quality of 'bricolage.' The realization of bricolage has four characteristic gestures: "découpage (or severing); preformed or extant messages or materials; assemblage (montage); discontinuity or heterogeneity" (Ulmer, 1998, 84). These artistic methods are, of course, trademark quantising elements of postmodern praxis. Theorist Frederic Jameson believes that postmodernity is born of image-saturated information space. He argues that this visual overload births an ongoing aesthetic experience within a membrane of culture. This aesthetic overwrites the concept of originality and the authority of authorship or of creation. A new, keener sense of sensation is born of this enculturation in the image and the aesthetic sense becomes aligned with perception itself. In such a way, he says, in an arena where every gesture becomes steeped in visual pleasure, the realm of specular appreciation—like memory—is rendered obsolete (Krauss 56). It is also telling, in an Information Age, that bricolage, collage and montage originated in the visual arts, just as information is a cultural discourse and "sophisticated analytical tool...for understanding visual structures of representation" (my emphasis; Kirschenbaum I).

In *Simulations*, Jean Baudrillard says of the hyperreal: "In this passage to a space whose curvature is no longer that of the real, nor of truth, the age of simulation thus begins with a liquidation of all referentials" (3-4). However, a point, plotted mathematically in Cartesian coordinates, never had any dimensions of its own. It exists as "pure position" (Benedikt 134). As an 'object' with the inherent quality of situatedness, the point acquires attributes which might include speed, resonance, orientation or shape (Benedikt 135). It is in this collision of the virtual and the actual forces in a multiplicity of intersecting fields that the intrinsic dimensions of the text unfold. In the networked connections of the information space of the electronic text, the media have become disseminators of their own metatexts: aestheticized images of the matrix itself. Look at the manifestation of the Glide lexicon or at Guyer's maze. Freed from the coordinates of the real, the interface with technology becomes more real than interfacing with unmediated reality. As we move through the aestheticized space of the networked text, we become the network. This "forced extroversion of all interiority" (Baudrillard, 1983, 132) is a cautionary condition of Baudrillard's ecstatic information traveler, just as in William Gibson's *Neuromancer* Case's addiction to 'jacking in' to the network is an expression of heightened consciousness; the same is true for the flashes of encroaching information overload and leakage—a form of madness or schizophrenia, and an emasculating danger—into Johnny Mnemonic's wetwired brain in the film of the same name. But, for feminist authors of the new media, who in no way fear this inversion of interior and exterior spaces, 'forced extroversion' is not a dangerous thing.

While *Patchwork Girl* is primarily concerned with the gap between the exterior and the interior, it also investigates the body as the origin of the self and as the seat of identity. This mission takes several different forms. The monster is consumed by notions of rewriting herself as way of overcoming her physical monstrosity and seeks to recreate herself as a result. She purchases Elsie's identity in an attempt to forget her countenance, her selves and her origins. She evokes some of her component parts: "Bronwyn and Roderick, Judith, Susannah, Flora and Bella and Anne, Eleanor, Tristessa, Geneva, Thomasina, Agatha, Constance, Jennifer, Jane. All disassembled, I made myself over, forgetting not to remember. I was many things before I became a human being again ("I made myself over"). She yearns to recreate herself, whole and unseamed and new. She takes Mary, her mother, back into herself and digests her. She is also divided in more than in body; in the text too she is a blending of two different characters. She is not merely Mary Shelley's hideous progeny, but she is also L. Frank Baum's Scraps, the quilted patchwork girl in the land of Oz. The land of Oz is not a gothic landscape, but a magical world. It is a dreamscape of the imagination where the gaps between exteriors and interiors are investigated. So-called monsters, like the Cowardly Lion, are consistently revealed to have beautiful interiors or unexpected character traits. Where Shelley's monster can only ever be reviled, "jumbled and jinxed" ("botched brother"), and her very multiplicity is monstrous, Scraps takes pleasure and pride in her difference, calling herself "delightful," "an original," "incomparable" and "rare": " I must be the supreme freak," she says. "[W]hen I became fully convinced that I was in reality the monster that I am, I was glad—I'm awfully glad!—that I'm just what I am, and nothing else" ("but I'm glad"). Scraps' pleasure in her compound identity arises from her sense of being a work of fiction, a creation of a maternal imagination, and she therefore embraces the matter of her many selves:

> I believed, as one should in the principle of identity, of noncontradiction, of unity. All the people I caught myself being instead of me, my unnameables, my monsters, my hybrids, I exhorted them to silence… Through art, one could even breed misfits and transform them into a new species. "Mosaic" technique of the maternal imagination, mistress of errors; aren't you the very demon of multiplicity? ("misconception")

Instead she is a creation who through her artful nature can juggle multiple contradictions and be a quilted "fabric of relations" ("research") because she is a handmade girl in a land of magical wonders. Mary's monster as a gothic creation of excess has no such luxury. She is a sexualized creature stitched together of inappropriate words and florid language, existing as a monstrosity of overload, of "infinitely various forms," of the excess and over-determined meaning of "a kind of alphabet":

> we have guidelines as to which arrangements are acceptable, are valid words, legible sentences, and which are typographical or grammatical errors: "monsters." We are inevitably annexed to other bodies: human bodies, and bodies of knowledge. We are coupled to constructions of meaning; we are legible, partially; we are cooperative with meanings, but irreducible to any one. The form is not absolutely malleable to the intentions of the author; what may be thought is contingent on the means of expression ("bodies too").

Inseparable from her linguistic context, she is ungrammatical, a monstrous construction that refuses to adhere to prescribed syntax or structural form, and cannot be conjugated into a singular identity or fixed persona. Much is revealed in the many tensions between her irreducible parts and selves throughout the text in the assorted discourses that flourish in the gaps between intertexts, between image and word, between monster, sexualized woman and girl-doll. This is not just an exploration of more favourable climates for the co-existence of an abomination, but a study of the molecular interiority of complex multiplicity "occupied by exploded systems, mingling … a thousand contradictory theories and floundering desperately in a very slough of multifarious knowledge" ("scraps")[56]. In all three texts, this inversion of interiority and exteriority, of intrinsic and extrinsic dimensions, is the guiding reason for the quest for transcendence in and of the simulated field.

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[56] Both *Califia* and *The Maze Game* have character transformations that invert exteriority and interiority as well. I will explore Violet's spiritual transcendence and rebirth in Chapter 3 and Óh'T-bee's twing, a spatial and temporal regeneration and re-creation in Chapter 4.

Jean Baudrillard's description of Los Angeles as "a network of endless, unreal circulation—a town of fabulous proportions, but without space or dimensions" (1983, 26) could just as easily be a description of the world of the information field of the World Wide Web or an electronic novel. The monster similarly describes herself as agent of her own city that is her atomic body and jointed fiction: "I forge my own links, I am building my own monstrous chain, and as time goes on, perhaps it will begin to resemble, rather a web" ("born"). The gap between the virtual and the real is the space where simulation begins, but it does not end there. The blurring of simulation and reality is a meeting of Baudrillard's hyperreality with the ultimate mediated world. Where does reality begin—or end—in the spaces of virtuality or in the corridors of the self? As in Gibson's 'consensual hallucination', there is a perpetual tension between dream and reality, between hyperreality and the real, between hyperaesthetics and information, between interior and exterior, between spectacle and society in our own narrative information spaces. This tension between the virtual and the actual functions as a networked, visual perspective based in the landscape of the mind.

The media do not represent the real in Baudrillard's view but only simulations of the real, just as Debord's 'spectacle' is a mediation of our public interface with society and the society of the text where "the spectacle is both the outcome and the goal of the dominant mode of production" (Debord 13). Manifested in the media, spectacle is the expression of an ideal social existence and the justification of its choices (13). As a realization of Guy Debord's society of the spectacle—where the visual spectacle itself is the form, content and goal of the masses, and what spectacle presents is not reality but the mediation of reality as an illusion of that same interactive spectacle that, despite its artifice, the masses believe in—the worlds of the Web and the electronic text are not a collection of images and interwoven texts and other media. Instead they are in reality social networks between people mediated by those images (Debord 12). This is what separates them from the passive, top down, spoon fed spectacle of film or television. Surfers of the Web or browsers of a specific text are linked to each other solely through the technology that projects the mediated world. The networked spectacle thereby unites us, but unites us as it keeps us interiorized, separate, and fractures us into a host of subjectivities.

Impossible to extricate the simulation from the reality, these two states—spectacle and social matrix—and spaces and times are interwoven rather than oppositional; the spectacle functions as a real part of public social interactions inside and outside the information field of the electronic novel. Both Debord and Baudrillard propose new notions of reality in the network as much as in life. The dividing lines between reality and simulation are, to their minds, contested territories with permeable borders like the transformed space of the public and private. Notions of the hyperreal, where all distinctions between artifice and reality are eroded, and where ecstatic information courses through our datastreams, help remind us that our sense of 'objective reality' is in a perpetual state of flux, just as our orientation within the matrix is constantly changing. Debord would tell us that there is no higher meaning here than the production of spectacle for spectacle's sake, and that the webbed text is a visual, urban reflection of the ruling socio-economic power. The 'reality' of electronic texts as tools of social and political critique will be explored throughout this work. However, if they lack a linear trajectory, that is not to say that their evolutionary process is directionless. More to the point, these texts are always already multidirectional and multiperspectival. Baudrillard sees these spectacles-within-spectacles as the death of the spectacle itself ("Ecstasy" 130) in the same way that Frederic Jameson sees the death of aesthetics in the rise of the cult of the beautiful (a simulated phenomenon). Once everything becomes information, the contemporary condition of alienation is abandoned for 'the ecstasy of communication'. According to Baudrillard, ecstasy continues to accelerate until it becomes obscenity (or, Virilio might argue, disinformation), when obscenity is by definition the end of representation (130) or the noise of overwhelming quantities of information. Ultimately, the visible depiction of excess is to Baudrillard a kind of pornographic border state:

> There is a whole pornography of information and communication, that is to say, of circuits and networks, a pornography of all functions and objects in their readability, their fluidity, their availability, their regulation, in their forced signification, in their performativity, in their branching, in their polyvalence, in their free expression… ("Ecstasy" 130-131)

It is this revelation of the data in the hyperarchitecture, behind the walls, of the code in our bones that Baudrillard finds so shocking. This visible depiction of the explosion of useless information—Einstein's information bomb—destroys old notions of public and private space and literary text, relocating the simulation from outside to within us. We are swallowed, bodily and whole—immersed in the intrinsic dimensions of the full space of the networked text's geography. This ecstatic state "turns us inside out" (132) and we too become pure information in a state of ecstatic circulation in, in this case, the literary text. When the world is transcoded into images, Debord tells us, all images become real (17). This is proof perhaps that once representation is freed of its referent, the spectacle regenerates itself—infinite boxes existing within boxes within boxes. This is the Japanese sense of ma once again. The intervallic domain of the network is the dynamic enfolding of space within space.

Of the many architectural metaphors that were used to describe spatialized memory in medieval times (like the thesaurus and pigeon-holes), one of the major ones was that of the memory box or arca. An arca was a small wooden chest or coffer used for storing and transporting valuables, including books, as well as, in the plural form arcae, being "the chests or cupboards in which books were kept in early monastic libraries" (Carruthers 42). The word has been etymologically preserved in arcane (hidden, concealed, secret), ark (particularly as in ark of the covenant) and archive, the place our memories are kept (OED online). It has survived conceptually in the word bookcase. An arca was not only the place that memories were stored, it was also an architecturally trained memory, "a construction, an aedificatio" (Carruthers 43)—a mental structure combining both memory and text as a storehouse of knowledge (Carruthers 45). This structural configuration is space within space or, more precisely, a network within a network like an ecosystem, a genetic memory box that holds the past secrets of evolutionary forces. A network within a network is also what Norbert Wiener called a feedback loop, and it is the foundational metaphor of the field of cybernetics (or systems theory), which likens organic systems to machines. In organic systems:

> the web of life consists of networks within networks. At each scale, under closer scrutiny, the nodes of the network reveal themselves as smaller networks. We tend to arrange these systems, all nesting within larger systems, in a hierarchical scheme by placing the larger systems above the smaller ones in pyramid fashion. But this is a human projection. In nature there is no "above" or "below," and there are no hierarchies. There are only networks nesting within other networks (Capra 35).

As in the mandala, the labyrinth, mnemonic space, and the electronic text, the network's spaces must be navigated to be understood. In other words, these are features and structural shapes that are best grasped and comprehended through the process of embodied interactivity—and it is motion in space that ultimately engenders agency. Janet Murray and Brenda Laurel argue that electronic texts offer *agency* in the act of spatial navigation within a virtual environment (Murray 128-129; Laurel 21). In interactive spaces, we construct the text as we play within its walls, with our choices forming the topology of the space of our voyaging. According to Justine Cassell, the most effective "feminist vision" of electronic textual design "as a space in which authority can be distributed to users" is to have the text "be *about* [its own] design and construction" (302). All of these texts are innately metatextual and, aleph-like, are ultimately concerned with the frames within their own frames ad infinitum of their own writing, both by the author and by the collaborative trails traced by the browser's body in space.

In the world of *Glide,* Slattery foregrounds metatextuality, interactivity and agency with the Collabyrinth, an interactive space where the browser can become conversant in the Glide language and, in a manner of speaking, dance the maze. Feminist theory specifically includes collaboration as an approach integral to the mingling of political movements and alliances across disparate fields and perspectives (Cassell 303), and in such a way the interactive space of the Collabyrinth invites us in either as a single player or as one member of a network. By using the Glide language we become storytellers, finding ways to express our own vision of the Dancers' perspectives on the world. Justine Cassell argues that "storytelling is an important activity for the construction of self, for the construction of the world, and for the construction of the norms by which we lead our lives, and thus an activity that encourages storytelling is a potential space for the maintenance of an identity" (307) that is empowered and vocal. In other words, it is in storytelling that we find our own voice and inhabit the experiential realm. Navigating through and with the Glide language—and in *Patchwork Girl* and *Califia* as well—foregrounds our body as our interface with both visual language and story space.

The body itself is a spatial interface whose inscriptions are depths in the surface, according to Elizabeth Grosz. She envisions this spatial interface as a Möbius strip. For Grosz, subjectivity is that which gets written on the inner surface of the strip and the "twisting of the Möbius is the torsion or pivot around which the subject is generated" (1994, 36). It is "an interface of the inside and outside" where passive becomes active and active passive (1994, 36). The "inversion of the Möbius strip, at that point of twisting is a self-transformation" (1994, 160), outside in, inside out, like the transformation that the glyphs undergo in the *Collabyrinth* or the morphing of identities that the Patchwork Girl experiences. The Möbius strip presents "two surfaces which cannot be collapsed into one" (1994, 189) just like the mathematically irreducible quanta of binary code. This is a construct and conglomerate of the body and its subjectivity as an interactivity (Grosz, 1994, 189). The body and subjectivity become a dynamic process, like memory, and constructs of gendered bodies become networked irreducible specificities, a feedback loop of the Möbius rotations on itself that serves to undermine, displace and critique the analytic, patriarchal model. Feminist transgression can thereby become a framework for interaction (Grosz, 1994, 189) and a literal embodied gesture. Grosz constructs the body as a flow of intensities: "fluids," she says, "unlike objects, have no definite borders; they are unstable, which does not mean that they are without pattern. Fluids surge and move, and a metaphysic that thinks being as fluid would tend to privilege the living, moving, pulsing over the inert dead matter of the Cartesian world view" (Grosz, 1994, 205). Grosz's Möbius strip is a model that is not well-suited to representing modes of being, but instead privileges the dynamic of modes of transformation just as Slattery's morphing glyphs, Coverley's interlocking generations and Jackson's monster's fluid identities do. Similarly, the Möbius strip is best at representing the temporal moment of transformation and its dynamic nature speaks to its innate ability to stand in for a complex ontological process (1994, 210). The Möbius strip therefore represents not being, but becoming. The Möbius strip represents the rhizomatic flow of multiperspectival, multidimensional, ecological networks.

The act of browsing is an embodied and engaged way of navigating textual space where it is constantly shifting in relation to each browser's collective histories, her interface with her pasts. Each browser's orientations in the text breed a greater understanding of the diversity and hybridity of perspectives inherent in all systems, materials and texts. Encouraging interference and conflicting viewpoints in our reading helps undermine monolithic political structures and makes for a more fluid mode of engagement. In *Nomadic Subjects,* Rosi Braidotti says that:

> Feminism as critical thought is a self-reflexive mode of analysis, aimed at articulating the critique of power in discourse with the affirmation of alternative forms of subjectivity. It [also] aims at the articulation of questions of individual gendered identity… The interaction of identity with subjectivity … spells out the categorical distinction between *dimensions of experience* that are marked by desire, …and others that are rather subjected to willful self-regulation. The vision of the subject as an interface of will with desire is therefore the first step in the process of rethinking the foundations of subjectivity (my emphasis; 1994, 120).

By encouraging willfulness and multidimensional vision, browsers become by definition self-reflexive and critical hybrid movers and thinkers who are more inclined to trust their gut and to use their bodies as tools or interfaces for enhancing their diverse perspectives and social networks. This redefinition of active engagement is an affirmation of the mobility of the play of simultaneous spatio-temporal variables on the body. Donna Haraway calls for the body to become an "agent" rather than "a resource" where we are capable of "situated conversation at every level of its articulation" (200), (rather than, for example, Deleuze's designation of the body as 'a play of forces' or 'a surface of intensities'). Boundaries are drawn and erased through our physical mappings of space, and if we use the model of the browser in flux we can transform our conversations with the texts and codes into models for possible bodies and feminist embodied interference. Where quantum computation draws in all possible histories of a process of a calculation, its power increases exponentially, making it quantitatively many times more powerful than a classic computer's calculations. Likewise, allowing our browsing to insert its body as an agent or interactor in textual spaces will multiply subjectivities—and therefore perspectives—many times over.

Navigation in space-time generates complexity. Complexity is a manifestation of what Deleuze calls "the dimensions of multiplicity" (263). Just as Cartesian coordinates can be plotted in virtual space, so the mathematical properties of its multiple and potentially unlimited dimensions can be exploited. Texts in cyberspace are not simply theoretically infinite, but literally infinite. Their dimensions can be infinitely expanded by opening intrinsic dimensions or by unfolding. Architect Michael Benedikt observes:

> When an object unfolds, its intrinsic dimensions open up, flower, to form a new coordinate system, a new space, from (a selection of) its (previously intrinsic) dimensions. Data objects and data points in this new, unfolded, opened-up space thus have, as extrinsic dimensions, two or three of the ones intrinsic to the first, 'mother,' object. These objects may in turn have intrinsic dimensions, which can unfold…and so on, in principle, nested ad infinitum or until, at last, one has objects that have only one or two intrinsic dimensions and their self-identity left. At every occasion of unfolding, decisions are made as to the partitioning of the remaining dimensions (144).

Like the universe that is expanding around us and the infinite expansion of irrational numbers, this new space has the potential to be just as dense as the old space, and this nesting of system within system can continue indefinitely. This is also a space where multiple systems can interact and become enfolded, intertwined or entangled. Entanglement is where the quantifiable systems of time and space intersect in the past, present and future, producing information that is inaccessible anywhere except in the richness of the multidimensional complexity of space-time. That is to say, two spatially interconnected but non-interactive systems that have shared their load of information in the past may still have some local information in common that is inaccessible except through operating the systems as a unit. In digital narrative, this dynamic connectivity is both narratological structure and the means of navigation in space and time. The lurch and the jump of a browser's deterritorialized journey through a hyperlinked text simultaneously problematizes connectivity, perspective and the nature of multidimensional space even as it explores them. The tendency is always to speak of and visualize the tangible rather than what lies in the space between. Infinitely dense, this present-tense information gap can only be traveled through and never visited directly because it is the entanglement of space and nonspace. It is the live instantaneity of a fold in time and space. This is not the white space of the printed page, but instead the full, noisy gap of a sensual and perceptual environment.

iv. Archival Structures and Fractal Subjectivities

"A network is a network is a network." – Friedrich Kittler

Michel Foucault is known for his passion for mapping the foundations of particular types of knowledge. In *The Order of Things,* he seeks to chart the contours and coordinates of the episteme of knowledge, those foundations of classification and organizational structure that are integral to systems of thought. Specifically he looks to identify the importance of the visual science of 'resemblance' and the four key 'similitudes' in the Western world as they mattered and ruled from the late medieval period until the dawn of the age of Reason. The web of resemblance that he charts—through its components *convenientia, aemulatio, analogy*, and *sympathy*—is a matrix of associational logic and connectivity similar to the World Wide Web that is linked, not by hyperlinks, but by the relational signatures of language. *Convenientia* is fixed but linked adjacent space; it designates a relationship between things or ideas (18). *Aemulatio* is mimicry; it is emulation freed from location and connection as a kind of simulation: "it is the means whereby things scattered through the universe can answer one another" (19). *Analogy* is the superimposition of *convenientia* and *aemulatio*; it connects resemblances across space and time, and simultaneously links man to the rest of the universe (21-22). Finally, *sympathy* is a dynamic principle of transformation, defining mobility and interpenetration; sympathy transforms differences into similarities, rendering connection as a gesture. These four methods of classification demonstrate how "the world must fold in upon itself, duplicate itself, reflect itself, or form a chain with itself so that things can resemble one another" (25-26).[57] This is not the end of the story though for these methods must be rendered into the system of signatures. Signatures alter the relation of the visible to the invisible, perhaps rather like the relation of the virtual to the real, or the hyperreal to the material, or the simulation to the simulacra, by defining the relationships between things. Similitudes must be 'read' (or their secrets divined) and hence signatures set out to map these elaborate interconnections in language. Similitudes are not to be confused with comparative biology or other scientific bases for comparison. For instance, a plant with a resemblance to a body part would be used to treat that part's diseases, or the walnut, with its hard shell and wrinkled interior, was used to prevent internal problems with the human brain it resembled (27). The divination of resemblances was a visual art and spiritual practice. The sole scientific method was in the recording of observations in print. Writing, therefore, comes to the fore in the Renaissance world picture—contemporaneous with the rise of the printing press—as the most important medium of information storage.

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[57] It is interesting to note the similarity in this concern to St Augustine's (354-430 C.E.) exploration of the inexplicable but divine order of the universe in an earlier age of scientific faith: "Every number is known to Him whose understanding cannot be numbered. Although the infinite series of numbers cannot be numbered, this infinity is not outside His comprehension. It must follow that every infinity is, in a way we cannot express, made finite to God" (qtd in Aczel 140).

Every resemblance has a signature, what we might think of as an icon or trademark or breed trait in contemporary terms, but this signature is simply relational and therefore an alternate form of resemblance of the same thing. They are woven of the same pattern. It should be immediately clear that this system has information overload as a precondition. Ultimately, if one looks hard enough (like Thomas Pynchon's paranoid subject), one will begin to see resemblances everywhere.[58] Everything in the microcosm will ultimately resemble the infinite macrocosm itself. This same phenomenon will, on a firmer scientific footing in the 20th century, with the merging of image, word and movement become known as systems theory or cybernetics—and the 'pattern which connects' will become the catch phrase of this school of thought. Resemblance is an enormous interwoven network of links, and the drive to record and remember the world in encyclopedic detail is born of this compulsion. The *Weltanschauung* or world view as a category of thought interweaves duplicated resemblances with a macroscopic justification on an ever larger scale. As a configuration of the shape of nature, it did, however, place some limits on apparently endless similitudes. This rendered everything classifiable—all documented resemblances—within a form that duplicated the shape of the cosmos (Foucault, 1994, 31). As I mentioned in the Introduction, alchemists and other followers of the occult arts, hermetic philosophers and the Cabalists also sought the divine order of the universe in a cosmology of knowledge. Moses de Léon wrote in his study of the cabala, the *Sefer ha-zohar*: "God is unifed oneness. Down to the last link, everything is tied together with everything, so divine essence is below as well as above, in heaven and on Earth" (qtd in Aczel 35). The speaker of these secret teachings, they speculated, would not only be able to bid and control the properties of matter—turning lead into gold was their most famous project—but would also be able to command through language the mystical powers of the universe. Alchemists Giulio Camillo (1480-1544), Giordano Bruno (1548-1600) and Robert Fludd (1574-1637)[59] sought to create memory theatres that would channel all of the secret knowledge in the universe into images and mathematical coordinates [Fig. 2.2, 2.3 and 2.4]. This knowledge was arranged in topological space with man at the center as he was in the universe (or so it was speculated). God's divine plan was such a clearly ordered system that they reasoned one only had to master the magnitude of the scale to reveal the divine in man himself. (Woman was not to be allowed to aspire to divinity for another couple of centuries).

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[58] There is a distinct connection here between charting patterns of resemblances and the spread of cultural content by memes. In our time, the meme is a concept and thing that has risen to prominence. It is an irreducible particle of culture that transmits itself from subject to subject through viral infection. I will explore memes as a form of mnemonic transmission, storage and retrieval in Chapter 3.

[59] Although he was no alchemist, the later thinker Giambattista Vico (1670-1744) would not be out of place in this list with his New Science, another mnemonic system and one that was very influential on 20th century media guru Marshall McLuhan.

The proto-Renaissance episteme was therefore caught in "an endless spiral" (1994, 32), drawing in knowledge and sources of all kinds from everywhere. Everything needed to be included because it was the resemblances that mattered—rather like our contemporary privileging of patterns and connections. These compulsive cataloguers sought to recreate the divine order and original plan in endless compendiums as we seek to include all knowledge in webs of previously unimagined complexity. Writing to them was a part of nature—given by God—and therefore never arbitrary, but linking to the secret conveniences of ancient, magical and holy languages. The transparency of language had been destroyed at Babel, and so subsequently they reasoned only the residue, these resemblances, could be mapped in the aftermath of God's wrath. Alchemists and hermeticists sought to find orientation in the direction languages were written from and in, as a literal map of the cosmos. The tableaus and compendiums of their knowledge were designed to recreate the divine plan of the heavens in the perfect form of the circle and branching shape of the tree. Rhizomatic and networked in nature, this is the topological theatre and information field that the Renaissance alchemist built using interactive spaces rather than merely recording and remembering the facts in print, and, just as the theatre of knowledge and the *ars memoria* created immersive spaces, so these systems, which would morph into the compendium and the encyclopedia, "spatialized acquired knowledge" as both trees and magic mechanical wheels (Foucault, 1994, 38). These are, of course, the contours and coordinates of the cabala. It too recovered scattered bits of ancient knowledges into epistemological systems or networks in order to reinfuse them with forgotten powers.

The electronic novel seeks to organize a similar kind of all-inclusive system. These texts are a spatialized form of architecturally-rendered, aestheticized information. For instance, in *Califia* navigational markers, of sorts, and architectural memory cues help a reader steer through the text. There is always the option of rifling through Calvin's 'Kit Bag' to check facts or details. This kit bag is a menu bar always accessible from any point in the text that is divided into a number of subsections: Paths, History, Family Trees, Events, Time Lines, Solar Table, Stars, Archive and Maps. Even these categories are all interconnected with the rest of the text, and direct the reader off on associational trails in less-than-linear explorations. Searching through Calvin's kit bag is not the ordered searching of a database, but more, as its name implies, hunting for something in a collection of things jumbled together. Calvin frequently pipes up to explain the organization of information in the text. "My *Califia* plan," he says:

> is based on a three-eight numerical base—a Cabala Wheel Dance. Each of the three narrative paths gives you a set of choices in crazy eights. If we put the idea together we get eight circling wheels. The seeker can, according to Kaye, discover infinite ways to progress from the horizon to enlightenment ("Calvin's Dance 4: Cabala Wheels").

But Calvin's dance is a translation, more Busby Berkeley than spiritual quest or cabalistic plan, and less an attempt to clarify than to obfuscate or at least complicate with yet another organizational system. These are in essence systematized networks within associational networks—and this is made explicit within the text. Kaye comments on what Calvin calls his "topological vision" in spatially structuring the text, and interprets it as "a Cabala":

> One way to understand where you are in *Califia* is to see it as a two-dimensional space with wheels like a clockworks. Or like the Sephiroth System—the central glyph of the Cabala (or Kabbala or Qaballeh). Each of the circles has a wheel-like structure, and each wheel has spokes which represent paths that can be taken. Depending on the choices you make, there may be 22 "true" ways and 32 "paths of wisdom." Or more... ("Calvin's Dance 3: Cabala").

Like *Califia*, a cabala is spatialized knowledge; it is a networked, topological system and a means of navigation through a divine cosmology.

Having its roots in Jewish mysticism dating back to the first century C.E., the cabala evolved as an "esoteric theosophy" until the thirteenth century when it became focused on de Léon's writings called the *Sefer ha-zohar*, the *Book of Splendor* (Sarason, qtd in *Califia*). Through magic and astral travel, the cabal is a projected journey through three worlds and ten dimensions. The worlds were the *supercelestial* world of the Sephiroth or the ascending planes of divinity, the centre *celestial* world of stars and the *subcelestial*, elemental or corporeal plane of existence (Yates 142), worlds which we find mirrored in Kaye's reading and writing of *Califia*. Part of the significance of the Sephiroth is numerical, with the word literally meaning "countings" (Aczel 32). Its ten elements are arranged like spokes on a wheel with the sixth element, the aesthetic dimension 'beauty' (also the 'heart' in the cabala's dynamic body as will be discussed in Chapter 3) called Tiferet, at the center as the connector [Fig. 2.5 Kircher's Tree of the Sephiroth]. Arranged around that hub are the other nine elements in their appropriate alternating sequence: first *Keter*, the crown; second *Binah*, understanding; third *Chochma*, wisdom; fourth *Gevura*, heroism; fifth *Chesed*, mercy; seventh *Hod*, majesty; eighth *Netzach*, eternity; ninth *Yesod*, foundation, and tenth *Malchut*, kingdom or action (Alcet 32-34). The mathematical significance of this form should not be underestimated. The number 10 is a sacred number in the Jewish faith and the Sephiroth were a way of structuring an equation to represent the divine infinite. The drive to understand the infinite connectedness of all things was seen as a holy quest, and, like the vanishing point in a Renaissance painting, the Sephiroth were a model of the invisible and unattainable existing beyond the horizon of God's immortal plan (Aczel 43).

In all of these systems of knowledge (what we might consider models of complexity), the shape of the infinite is depicted as concentric circles. This shape is most familiar in Dante Alighieri's (1265-1321) representation of the three celestial planes of Paradise, Purgatory, and Hell in his *Divine Comedy*, but it also rematerializes in the two most important mathematical models of infinity visualized in the 19th century: the Riemann Sphere[60] and Georg Cantor's infinite levels of infinities nested within infinities, the transfinite numbers or alephs (Aczel 69, 140-148). The aleph—"one of the points in space that contains all other points" (Borges n.p.)—and Cantor's ideas are probably most familiar to literary scholars through the blind librarian Jorge Luis Borges's exploration of the infinite in a short story of the same name. After peering into the aleph, his fictional self struggles to describe the information overload of his glimpse of the entirety of the visible universe:

> In that single gigantic instant I saw millions of acts both delightful and awful; not one of them occupied the same point in space, without overlapping or transparency. What my eyes beheld was simultaneous, ... I saw the Aleph from every point and angle, and in the Aleph I saw the earth and in the earth the Aleph and in the Aleph the earth; I saw my own face and my own bowels; I saw your face; and I felt dizzy and wept, for my eyes had seen that secret and conjectured object whose name is common to all men but which no man has looked upon—the unimaginable universe (Borges n.p.)

This is the inconceivable infinity that, he observes, mystics evoke symbolically to describe the nature of the Godhead—and that so often drove those who sought to define infinity, from rabbis to mathematicians, mad.[61] Jewish mystics called this "the Ein Sof, the infinitude of God" (Aczel 145) and Georg Cantor as mathematician, Cabalists as seekers of divine order, rabbis as students of the Ein Sof, and Dante as poet all drew the magnitude of the universe as this image of nested circles within circles (Aczel 148).

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[60] The Riemann Sphere is intersected by a plane that includes a point of infinity outside its circumference. Riemannian space, the space of embodied presence, will be discussed in Chapter 4.

[61] Amir D. Aczel documents this trend at length in his book, *The Mystery of the Aleph*. It was not until the 20th century that the logical conundrum that had taken such a toll was solved. Known as the continuum hypothesis, it was discovered that the problem is in essence a discourse network or closed system of numerical mediation: simultaneously mathematically true and false, it has no solution within the framework of our mathematical school of thought (Aczel 155, 204). Attempts by Ernst Zemelo to solve it

The cabala as a dynamic system is a kind of spiritual hyperspace, the sensory domain of quantum physics, which has animated linkages across its eleven dimensional realms of time, space and force. Like mystical vision, hyperspace is virtual and therefore can only be 'seen' through faith in the higher invisible dimensions. In it, objects are not "in space," they are space itself (Wertheim 213), and, like the emanating Sephiroth, they are a framework for containing the totality and the nothingness of the Godhead. The Sephiroth became intertwined with the Art of Memory in the Middle Ages in the hands of Raymond Lull when he introduced animated or moving images into the Art and defined nine cabalistic planes using a topological or "geometric logic" (Yates 179). (Lull set the tenth element or principle, *Malchut,* which is action, outside of the magic circle.) Just as the secret society of Giordanistis, as the practicing followers of Giordano Bruno and his occult arts were known, were the model for the underground postal service in Thomas Pynchon's *The Crying of Lot 49,* so the Sephiroth in the Renaissance were also used, inspired by Lull's vision, as "eternal places of memory" in a community of one browser at a time by Giulio Camillo (Yates 142) in his cosmic theatre.

Community comes to the fore in the topological space of the networked quest and pulls in *legenda*, i.e. things to be read, like a legend on a map. Kaye, in likening electronic *Califia* to a cabala, is acknowledging not only the spiritual journey and process that are inherent in the search for enlightenment to be found navigating the spokes of this archival text, but is also referring to the presence of memory spaces that we must inhabit corporeally (on a mystical, or virtual, plane) to experience the non-conceptual components of the voyage. These cycles are spiral entrances, hyperspace doorways through linked texts and images, to other infinite (multiversal?), spatial, temporal or conceptual planes of existence. The spiritual process is by its very nature unending and, having transcendence as its goal, assumes a browser navigating in space as its primary mechanism. However, in spite of these circlings, or because of them, we reach a number of 'endings' or unfoldings in *Califia*, which are naturally jumping off points—either to return to where we have been or to spin off in new directions. One of these endings is the 'Index of Augusta's Archives' which allows jumps to different organizational trails, but at the bottom of that screen, we are told that we have reached the "End of Archives," and

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with a so-called "Axiom of Choice" only resulted in a further gnarled paradox positing the impossible possibilities of infinite choices (Aczel 174). Computers have been no more successful than mathematicians or mystics at unraveling the knot of the infinite and all of the infinities enfolded within it.

are directed to other sources, specifically the L.A. County Library and the Hall of Records. This is a signpost or mnemonic reminder that, like Pynchon's postal service, endless data could have been included, but that the narrators have selected only relevant material, most often from unofficial sources. The official records of the Library and Hall would tell a very different story from what we encounter here. And even though we have reached the 'end' we can still "Return to Roadhead" (as opposed to the cabalistic 'Godhead'), that is the journey itself, where more information will be revealed and enlightenment acquired. Likewise in *Patchwork Girl*, the different component parts of her life are ordered in sections, and, while it is possible to jump from one section to another, the default mode gives us a more linear progression through the narrative until we reach the end of each part and the reading 'stops.' In *The Maze Game,* the Mass Transit Algorithm or MTA, which permits instantaneous travel between two points, is connected to all points everywhere with Óh-T'bee's gaze forming a social cosmology of a literally networked society.

These are organic systems in the same way that in the Renaissance nature was seen as a massive organic matrix of "words and signs, of accounts and characters, of discourse and forms," according to Foucault (1994, 40). Knowledge to them was what we would consider a communications network: the interconnection of all forms of language—spoken, written, heard—as a means of trying to restore or map the original order, God's divine plan.[62] Commentary presumed an originary text (1994, 41) that mapped cosmic order and mystical language: "The language of the sixteenth century" is best "understood not as an episode in the history of any one tongue, but as a global cultural experience" (1994, 41) the likes of which will not be seen again until the advent of the World Wide Web. There is, however, a large difference between the Cabala and the Renaissance system of resemblances, and the Web and networked texts. In the media age, there is no order at the centre, only more information. Structurings merely lend order to chaos, unfolding to reveal (potentially) infinite networks within networks. To the occupants of the 16th century, "writing" is "part of the fabric of the world; one speaks about it to infinity, and each of its signs becomes in turn written matter for further discourse; but each of these stages of discourse is addressed to the primal written word whose return it simultaneously promises and postpones (Foucault, 1994, 41). Suffice it to say that "the experience of language belongs to the same archeological network as the knowledge of things and nature" (Foucault, 1994, 41). This bears a startling resemblance to Norbert Wiener's cybernetic feedback loop—a kind of systemic ouroboros—that seeks to document the intrinsic and divine mathematical plan in living systems. A system of perpetual motion, the feedback loop is self-regulating with the final stage powering the initial one ad infinitum (Capra 56). Wiener's loop is also an analog version of a Möbius strip. It merely lacks the twist: the potential for dynamic transformation. It is a system connected by its member parts, and interwoven by a cyclical dynamic feedback system of communication that is always in motion (Wiener 24). Its lack is that it has been rendered in analog terms, as I mentioned. It is subsequent additions to Wiener's theory of cybernetics that come to re-envision systems theory as an ecological matrix, as the 'web of life,' as Fritjof Capra calls it.

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[62] Even as late as the 18th century another theorist of the infinite, Gottfried Leibniz (1646-1716), sought to find the macroscopic order of God's grace as revealed by mathematics on a microscopic scale. He was convinced that the plan could be divined if only it were possible to see far enough:

> When I maintain that chaos does not exist, I do not at all mean that our globe or other bodies have never been in a state of outer apparent confusion…but I do mean that whoever would have sensitive organs discerning enough to notice the smallest parts of things would find that everything is organized. … For it is impossible for a creature to be capable of delving at once into the smallest parcel of matter because the actual subdivisions go up to infinity (qtd in Deleuze, 1993, 153-154).

Leibniz's theories, including his monadology, will be discussed in greater detail in Chapters 3 and 4.

Language, that other amorphous web, shifts and realigns in the transition from the medieval to the Renaissance and from a ternary system to a binary one, Foucault argues. There was an organic connection in the 16th century between what was *visible* and what was *expressible.* These two elements were endlessly interpolated in a feedback loop between meaning and object, and in the erstwhile progress of the Renaissance *name* came to be disconnected from *thing*:

> This involved an immense reorganization of culture, a reorganization of which the Classical age was the first and perhaps the most important stage, since it was responsible for the new arrangement in which we are still caught—since it is the Classical age that separates us from a culture in which the signification of signs did not exist, because it was reabsorbed into the sovereignty of the Like; but in which their enigmatic, monotonous, stubborn, and primitive being shone in an endless dispersion" (Foucault, 1994, 43).

This is, of course, one part of the paradigm shift from orality to the primacy of print. Our more contemporary paradigm shift from print literacy to secondary orality propagated by the media age troubles these binary classifications anew. We are shifting again, not back to a ternary system, but to a fractal one that is in a perpetual state of flux.

The interconnected networks of systems theory have rewoven the visual back into the fabric of language, and have brought with them the new condition of speed—movement being the new dynamic in the linguistic system. This is a manifestation of the quantum category of complexity, but, combined with the anxiety of informational immersion, has become an organizational system that threatens to reveal not a divine plan as its infrastructure, but chaos at its core instead. Where for the hermeticists of the 16th century signatures, content and similitudes blended in a system of resemblances (signifying equally both form and content) that sought to marry all three into a single structure, for us data, information and knowledge are the balls that we keep in the air in a perceptual, networked multiverse that requires us to look everywhere all at once.

In "The History of Communication Media," Friedrich Kittler identifies the uncoupling of communication from knowledge as the hallmark feature of our system, just as Shannon separated text from context, and cybernetics isolated the organizational pattern of a system from its physical structure. Kittler highlights the difference and distinctiveness (defined by McLuhan) between *information* systems, methods of flow, storage and retrieval, and *communications* systems, which include everything from networks of roads to language itself. The first paradigm shift that followed the printing press, he says, disconnected interaction from communication. Our second shift, to the electronic media, he argues, has separated communication and information (1996, n.p.). Like the gestures of memory, writing unites methods of storage with methods of transmission, and the speed of the new media links communication with the synaptic matrix of the relational gestures of recall. In fact, in the communication media, speed is arguably becoming more important than the message, for, just as information theory separated text from context, so the digital media severed communication from the information medium of its transmission (Kittler, 1996, n.p.). Hence the preponderance of information overload (and its ongoing association with the so-called chaotic female gender.) Continuing this tradition, John von Neumann, the inventor of the first digital computer, defined information structure as the sum of its interconnected hardware elements—CPU, mnemonic storage and retrieval, and bus, an electronic transportation system for sending binary encoded data—severing the final connection between "functions and arguments, operators and numerical values" (Kittler, 1996, n.p.). Until the situated (and I would add gendered) body is reinserted back into this equation, Kittler argues, the escalation of data glut and the leeching of meaning from the informatrix will continue unchecked.

When the prevailing medium was print, the encyclopedia, documentation and commentary came to rule the codification of knowledge. Now, in the 21st century, there is no commentary, only information overload. Or, perhaps more exactly, everything is commentary and we are witnessing the reunion of all forms of discourse that the

Cabalists and alchemists so secretly sought. Peter Lunenfeld sees this explosion of metacommentary on information as a symptom of the fact that the information field "metastasizes faster than cancer," making it difficult to map the shifting aesthetics of our age and its domain (29). Information has become indistinguishable from disinformation, and orientation is disorientation in the noisy mediated space of contemporary culture. In our time, counter-discourse, contradictions and rebuttals have become the primary discourse. As language began to be uncoupled from meaning (like text would be from context and cybernetic pattern from structure in our time), the primary relationship of language to the world dissolved. This started the great paradigm shift (Foucault, 1994, 43) that was to culminate in the Age of Reason and the disconnection by René Descartes of matter and spirit. All language thereby came to matter only as discourse and lost its magical power as a sign—and, yet, despite this or because of it literature in both the print and electronic mediums has retained the history and cultural memory of its old mystical force through its immaterial or virtual powers to create images in the mind. Its realization as a situated "counter-discourse" to the world of science and knowledge is evident in its magical ability to re-animate language and keep it alive as a living ecosystem (Foucault, 1994, 43). We are now suffering the growing pains of the switch from the Classical binary system to Gebser and McLuhan's aperspective world, the tectonic shift from linear, logical and sequential information theory to the simultaneous, discontinuous and resonant networked new media (McLuhan and McLuhan 90). We are entering the mediated age of the fractal. Literature's situatedness is inherent in its role as a material and metaphorical counterpoint to the metaphors and materialities of science in the visual virtuality of art. Situatedness is of course a quality of historical narrative as well, but from an assumed single, focalized perspective. It is network culture, quantum theory (with its multiverse) and the mass media that further fragment time and vision, shattering notions of a single viewer and multiple viewers seeing the same thing. The introduction of memory as a dynamic component of the present introduces trajectivity into our subjective engagement with place, space and time, engendering multiperspectival looking or fractal perspectives, the notion of all things being simultaneously possible and intrinsically interconnected in a textual world.

The 20th century was witness to the violence of the shift from mechanistic to systems thinking and birthed a new organizational paradigm with which to understand the structure of the natural, social and technological worlds. More and more, systems have become aggregate structures, incorporating greater and greater complexity (the notion of networks nesting within networks, for instance) as this shape becomes native to our ways of thinking, and of structuring and storing mnemonic data. Where systems theory has been truly revolutionary though is in the revelation that systems are irreducible—they are resistant to analysis: "The properties of the parts are not intrinsic properties but can be understood only within the context of the larger whole" (Capra 29). This is a total reversal of the interrelationship between context and content, between the parts and the whole. The focus in ~~systems~~ thinking has therefore become situated and contextual as a means of understanding the nature of internal patterns that connect. Quantum science, while not a systems theory in its own right, has further mapped this transition, studying the probabilities of interconnectedness. Like information, memory and Cantor's set theory with its multiple levels of infinity, subatomic particles are both objects or properties, and map relational dynamics between things. According to Werner Heisenberg, the founder of quantum theory: "The world thus appears as a complicated tissue of events, in which connections of different kinds alternate or overlap or combine and thereby determine the texture of the whole" (qtd in Capra 30). This is also mirrored in the concept of the One in the Many of the Sephiroth that is greater than the sum of its parts—like Leibniz's monadology or Giordano Bruno's "zone of immanence" in his memory theatre, the "One-Multiple" (Deleuze, 1993, 24). In the relational connections of quanta, the whole dictates the behaviour of its components. In the relational web of the new media artwork, the text is an enfolded discourse network that determines where we as browsers can journey and, to a lesser extent, what we will find there. It also ensures that our experience of the Möbius flow of the text as a whole is greater than the sum of its parts and that the journey, not the meaning or narrative, is our reason for plugging ourselves into the form.

This capacity for interconnectedness is what we would otherwise call promiscuity, or the dynamic desire of wanderlust. It is an attraction and a quest for union and a kind of spiritual transcendence of individuation. Psychoanalyst Jessica Benjamin argues that:

> female desire must be conceptualized as the in-between space, connecting inside to outside, in a constant flow of self into other that cannot and should not be disrupted by falsely dichotomous distinctions… The [gendered] "transitional space" that Benjamin defends must be understood as an interface, marking both the distance and the proximity between the spatial surface of bodies. "Something that both forms a boundary and opens up into endless possibility" (Braidotti, 1994, 201).

The gap between our mnemonic linkages in the new media therefore is a space not only of desire, but also one that acknowledges difference within ourselves and with(in) others—the One in the Many and the Many in the One. In a textual environment, it calls for a cross-pollenization of ideas between text, browser, memory, embodied now time and occupied space. It calls for fractal perspectives.

Fractal geometry is a way of measuring and modeling complexity. For Plato, geometry was "the hallmark of scholarly thought" (Davis and Sumara 823). A century later, Euclid narrowed the field from "a manner of enquiry that aimed at a total understanding of the universe through the systematic reduction of all phenomena to fundamental particles, root causes, and original principles" to a visual form of points, lines and shapes (Davis and Sumara 823). For centuries we used Euclidean geometry and the line as basic units of measure and then Isaac Newton and Gottfried Leibniz's calculus allowed us to measure curves and curvilinear figures. Chaos theory both builds on and departs from traditional geometry, using a complex new systemic perspective suitable to describing and analyzing forms found in nature. Subjectivities too have fractal dimensions, being composed of many self-similar components like gender, age, class, race, sexual preference, and abilities. In a slightly different manner, I have already mentioned how subjectivity over the last 100 years has also become increasingly fragmented, from Freud's subconscious to Bergson's five sensory facets of subjectivity to Deleuze and Guattari's schizophrenic subject. Subjectivity can now more accurately be seen as a dynamic *process* of embodied knowledge that inhabits the fractal domain. We all have an infinite number of self-similar selves. It is constantly in a state of Möbiusly redefining its own place and complexity according to a network of power formations. It follows that this embodied materialism is a manifestation of what Teresa de Lauretis, after Michel Foucault, called the "technology of the self" (qtd in Braidotti, 1994, 99). The technology of the self is the material dimension of the subject that measures how gender structures subjectivity as a variable of its own complexity; in short, the technology of subjectivity is a redefinition of gender in the matrix of a collectivity of posthuman differences (Braidotti,1994, 99) where the subject is an emergent property of the whole.[63]

When place and perspective emerge as a vantage point for fractal subjectivities, we acquire added dimensions in our engagement with the world. We move from a two-dimensional topography into a multidimensional topology. Donna Haraway called this notion of multiple subjectivities the split self or cyborg consciousness. She says:

> The split and contradictory self is the one who can interrogate positionings and be accountable, the one who can construct and join rational conversations and fantastic imaginings that change history. Splitting, not being, is the privileged image for feminist epistemologies of scientific knowledge. 'Splitting' in this context should be about *heterogeneous multiplicities* that are simultaneously necessary and incapable of being squashed into isomorphic slots or cumulative lists. (Haraway 193)

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[63] In the next chapter I will explore Maurice Merleau-Ponty's concept of the body too as a component of the larger system of the subject.

These multiplicities are not reducible, either to human or machine or to simplex dimensionality, but instead exist in geometric space. "This geometry," she says, "pertains within and among subjects. The topography of subjectivity is multidimensional," which is then by definition a topology, "so, therefore, is vision. The knowing self is partial in all its guises, never finished, whole, simply there and original; it is always constructed and stitched together imperfectly, and therefore able to join with another, to see together without claiming to be another" (Haraway 193). While Haraway's split specifically refers to the merging of human and machine, doubled visions have long inhabited feminist spaces. N. Katherine Hayles takes Haraway's cyborg consciousness to a new level. Hayles posits human subjectivities as multiple agents operating from a matrix of competing desires, motives and forces with the body acting as the steersman between shifting states of being. She calls this the posthuman. Uniting consciousness and the body, "the posthuman subject is an amalgam, a collection of heterogeneous components, a material-informational entity whose boundaries undergo continuous construction and reconstruction" (1999, 3). This subjectivity is fractal, modeled on the complexity of the network and mapping the malleable relations between self, vision, consciousness, discourse and environment. But while Hayles's network subjectivity is emergent and distributed (1999, 291), it is still locked within a framework of human-computer interactivity. Fractal subjectivities more completely draw in the motion of the body in space. Like the shifts in perspective that have marked the great ages of Western civilization, what Paul Virilio calls the "trajective," a speedy state oscillating between the subjective and objective—that maps "movement from here to there" which we require to understand shifts in ways of seeing (Virilio 24)—is a dynamic kind of posthuman subjectivity: one that is fractal. This evokes Elizabeth Grosz's Möbius strip once again as a dynamic form of embodied transformation, as a dynamic and fractal subjectivity. The subject is not in the system (like Glide is not in the Game), but is born of the interaction of interior and exterior, in the twisting and intertwining of the components therein. In Jackson's *Patchwork Girl,* Coverley's *Califia* and Slattery's *Glide* and *The Maze Game*, thematic spirals of hybridity and complexity reach far beyond the structural organization, being sutured into their body-as-text and text-as-body as an essential component of the mode of telling, while voices interlink the words across dimensions. This is the monstrous multiplicity of the *mestizo*, the in/visible, irreducible hybrid, who is always in a state of flux. In the same way, browsing is a portal to alternative perspectives and models, bringing the posthuman environment into the orientation of the trajective, topological domain.

Quantum feminisms are a celebration of multiplicity, hybridity and complexity. They are forms of embodiment that use situatedness as a way of writing free of old boundaries, of leaping out of restrictive historical frameworks and orientations into a new future. This future is relentlessly material, acknowledging the physical realities of the conjunction of the multidimensional social systems of visions, bodies, machines and texts as much as creating environments for the creative state of immersion. This is a situated habitation that re-embodies the browser by incorporating her physical actions into the interactive, reorienting nature of navigation. This is nomadic voyaging as a way, not of destroying boundaries, but of unfolding them, acknowledging them and making them permeable. This is dynamic transformation as a leap of transcendence beyond the weight of the predetermination of archival structurings of memories.

3. The Unfold: Immersion

i. Unfoldings: Bodies of Memory

> "The transition to a new age requires a change in our perception and conception of *space-time*, the *inhabiting of places*, and of *containers*, or *envelopes of identity*. It assumes and entails an evolution or a transformation of forms, of the relations of *matter* and *form* and of the interval *between*: the trilogy of the constitution of place." – Luce Irigaray

A self-reflexive pause and a spot of metacommentary might be in order here for this chapter is a fulcrum of sorts in the architecture of this work, existing between the interiorities of temporal organization I explored in Chapter 2 and the exteriorities of spatial organization that I explore in Chapter 4. Despite these thematic units being arranged in separate chapters, you will note that concerns of time and space are constantly intertwined in both sections. I have not separated the two dimensions for independent study or treated them as either twins or binary opposites, for space-time is an irreducible n-dimensional system with its two halves being elaborately and simultaneously interwoven in every aspect *and* in no one single one. I have, therefore, concentrated on the interconnections of space-time's social implications and political structurings in the architecture of the literatures of the new media. Where I have used the matrix in the last chapter as the shape of time in the spaces of the electronic novel, and the knot will take the shape of space in the next, here the unfold—an animate noun that is not an object but an action, a gesture in the process of becoming a verb—will take the shape of this meeting and interplay between the chiasmata of dynamic time and dynamic space in the system of the digital text. Chapter 3 is the interface between those two dimensions—the meeting as a dislocated social network that Doreen Massey dubs the "power-geometry" (265) of space-time—dimensions that are both modes of becoming. So, naturally, this chapter will explore the dynamic transformations of time and space—the in/visible mergings of insides and outsides—that occur in the immersive environments of the new media. As space becomes time and time becomes space, the body as interface, which will be the subject and site of these transformations, is the mediator between the revolutions and ruptures and mergings and hierophanies of the temporal and spatial in the networked community of the new media artwork.

Cyberspace and the virtual spaces of the new media invert the relationship of the browser to information by immersing the browser body in information space (Novak 226). This ultimately transforms the aesthetic space of the new literatures into a space-time *architecture* where narrative is an emergent property of navigation just as it was for the perambulator in the cathedral of the *ars memoria*. Since architecture is unfolding space immersed in real time, opening space for bodies, short-term memory, movement and ideas, it is important to understand the distinctive nature of *virtual* architecture as opposed to its real counterpart. Marcos Novak has observed that "cyberspace *is* architecture; cyberspace *has* an architecture; and cyberspace *contains* architecture" (original emphasis, 226). Virtual environments have as a result emerged as aestheticized renditions of the architecture of our creative and mnemonic states—this is imaginational space, the space of the dream, or the memory, or the space of the creative act writ large enough for us to insert ourselves into. The hyperlinked electronic text is also such a structure that unfolds to allow the passage of bodies through it in real time, just as the body too *contains*, *has* and *is* the architecture of the senses and of the very stuff of life itself. Novelist Victor Hugo once observed that, in the writing process, "[f]orm is the base that rises to the surface" (qtd in Virilio, 1991b, 67). In our time, the interface is a literal rendition of this kind of aestheticized form as surface, and, in the electronic text, form does not mean simply a surface tension. It is what we must immerse ourselves in (like in our memories) in order to navigate the fluid spaces and times of the fictional world. Mark Taylor and Esa Saarinen speak of hypertexts as an "interplay of surface and depth [that] gives way to a perpetual displacement of surfaces that is anything but superficial" ("Telewriting" 7).[64] In these pages you will encounter the emergent architectural domain of space-time as an unfolding of multiple navigational surfaces and depths in immersive fictional environments, and see the process of the mnemonic twist—Slattery's twing—as a dynamic force Möbiusly blending, not just the two halves of this work, but layerings of information space with information time as well. This section will explore the body as an interface to the rupturing of the framework of space-time for the ends of creating multidimensional sensory architectural environments, and as a site of transformation of the layered metaphysical terrain of space-time into embodied presence.

In *The Lost Dimension*, Paul Virilio observes that architecture is a barometer of social attitudes and that, in the way it reflects beliefs, becomes an instrument of organization for a society's time and space (1991b, 22). There is a tension, however, between the architectures of time and space and the material networks of the communications media. Architecture builds and organizes actual geographic and political spaces while the media construct and deconstruct virtual space-time (Virilio, 1991b, 22). Rigid, durable, physical architecture is on the decline as our world swells, becoming increasingly informational, and the virtual world surfaces, acquiring a kind of aestheticized structural materiality that is fluid, transparent and in a state of flux. Like the twist in the Möbius strip though, neither of these architectures can be entirely freestanding or inseparable. They are conjoined surfaces that leak or bleed into each other. Maurice Merleau-Ponty talks of leakages—'*échappements*'—in the system of the subject (189) that, like Bergsonian duration, indicate a system that is fragmentary, "all-encompassing and seamless, and yet, as it is heterogeneous, it cannot be self-contained" (Casey 92). Science tells us that every surface embodies this tension for "[e]ach surface is an interface between two environments that is ruled by a constant activity in the form of exchange between two substances placed in contact with one another" (qtd in Virilio, 1991b, 17). Virilio cites this definition to demonstrate the pre-existing contamination in any system in the electronic age, the innate condition of information overload, where the transfer of ideas or substances is inevitable since all boundaries have become permeable entryways and all surfaces virtual (1991b, 17). Such leakages are inevitable in complex systems where our interactions are expressions of becomings, and the unfolding space of our navigation is an inscription of our own in/visible subjectivities as browsers. The interface itself is also such an unfolding of a new mode of representation for a theoretically infinite number of entry points, vectors, surfaces and dimensions.

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[64] Similarly, Rob Wittig speaks of electronic texts as having "reading surfaces" (Wittig 2).

For Paul Virilio—and for Frederic Jameson[65] as well—this shift in the chemistry of the structural codes of Western society marks a crisis of representation. Just as the postmodern has blasted and crumbled the foundations of linear narrative, so the rise of disinformation in the Information Age has fractured the mathematical stability of the obverse of narrative: the dimension. Virilio says "the conceptualization of 'dimension' as geometrical narrative," a kind of measurable reality, (Virilio, 1991b, 24) has been shattered to bits, literally into digital bits. Since the virtual and the real have always existed as this kind of Möbius system (as the body and the subject do as well), so virtual architectures are becoming our new modes of representation of the real in virtual space, our new environment for the transit of bodies in time—fractal, geometric time that we occupy in the present moment like a country. Architecture, no longer embodying substance, is now liquid and registers on a sensory, especially visual, plane. The new media interface transforms this in/visual dimension, our vision itself, into action and our look into the instantaneity of gesture. This is the domain of the unfold: an act without substance, an object without volume, a fold that opens, a vector that points in all directions at once. As an unfolding, the interface stitches place, moment and object to non-physical space (Virilio, 1991b, 52); yoking these elements together, the interface becomes a matrix—or an unfolding spiral curve like Bergsonian memory or a helix of DNA—that spins in a perpetually dynamic state of unfurling dimensions, with the geometric opening being enacted by quantum interference. This interference is a not a palimpsest; it is instead an aleph, a point in space-time containing all other possible points. It is the instantaneous convergence of all possible histories on the browser's body in motion in the architecture of the archival text, a multiverse of sorts.

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[65] Jameson calls for a mapping of chaotic space-time to ward off its dislocation of geographic perspective; this mapping is essential, according to him, precisely because its infinite dimensions render it "unrepresentable" (Massey 266, 267; Jameson, 1991, 374-6).

As I explored in the last chapter, it is only recently that space and time have come to be considered integral to each other and to be seen to co-exist as complementary dimensions, as an interplay of hybridized spectacle, in the systems of the spatial realm. One particular kind of space, the interval, spans the gap between these different dimensions. The interval is a space in time or a temporal placeholder. It is a gap or a pause between moments. As a quantifiable length of time that intervenes between events, the interval is an important concept to writing, memory and the senses. Gaston Bachelard, for instance, aligned Henri Bergson's duration with the supra-dimensional expression of unfolding intervals: "Duration consists of instants without perceptible duration, just as the line is made of points without sensible dimension" (qtd in Virilio, 1991b, 36). The interval is also a focal point for Jacques Derrida. In "*Différance,*" he says it is neither spatial nor temporal but a process of dynamic transformation:

> An interval must separate the present from what it is not in order for the present to be itself but this interval that constitutes it as present must, by the same token, divide the present in and of itself, thereby also dividing, along with the present, everything that is thought on the basis of the present, that is, in our metaphysical language, every being, and singularly substance or the subject. In constituting itself, in dividing itself dynamically, this interval is what might be called *spacing,* the becoming-space of time or the becoming time of space (temporization). And it is this constitution of the present, as an "originary" and irreducibly[66] nonsimple … synthesis of marks, or traces of retentions and protentions … that I propose to call archi-writing, archi-trace, or *différance*. Which (is) (simultaneously) spacing (and) temporization (Derrida, 1982, 13).

While this concept of archi-writing as a space of becoming is something that I will return to later in the chapter, this differentiation or meta-conscious separation of time from itself, from the present, is a spatial gap—the trace of its presence—that exists outside of or out of step with time. Denoting an exteriorized time that is not continuous, i.e. instants spaced deliberately apart, an interval of time can, like the electronic novel, be engrammatic, quantised, successive, simultaneous or, in quantum space, dynamic. This latter, known as intervallic space, is the domain of strange attractors in a state of quantum flux—molecules that exist in and out of time, and are out of synch with any pretense at chronology. Like quantum mechanics, "accidental, discontinuous and heterogeneous" dynamic space is a new mode of understanding geometric dimensions that entirely undercuts the old Euclidean notions of "substantive, continuous and homogeneous space" (Virilio, 1991b, 35). As the sensible dimensions of an unfolding, intervallic space is the dynamic domain of archi-writing, memory and imaginational space in the electronic text where our navigational gestures determine our location and write the emergent pattern of our voyaging; this accordion-like expansion of intrinsic dimensions is a montage of sorts of what we see or experience, or what we might call the shape of our becoming. For Elizabeth Grosz, it is these dynamic times that are key to understanding the nature of virtual space, and, as a logical continuation of that, the nature of the electronic text as well. These transformative moments release us from the stranglehold of the ever-present present moment: "The times before and after time are the loci of emergence, of unfolding, of eruption, the spaces-times of the new, the unthought, the virtuality of a past that has not exhausted itself in activity and a future that cannot be exhausted or anticipated by the present" (Grosz, 2001, 112). An unfold is an act of becoming.

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[66] Ultimately all of the forms that I am discussing in this work are irreducibles. I will address this issue, and examine the twing as a dynamic solution to this problem, in the conclusion.

As I mentioned in the last chapter, unfoldings are intrinsic dimensions that open indefinitely outward, potentially encompassing an infinite expansion of space. Like an inflating balloon, the interface is a phenomenon whose infinite writing surface is situated in ever-present temporal and incremental space, perpetually dividing itself to reveal new moments of present-tense textual time, and whose spatial dimensions are performed via the instantaneity of dynamic transformation. A temporal surface like the interface is a self-contained discourse network and an organic system; such a system is also familiar to us in the guise of the body, a system which is both frame and material for its own performative narratives. This expression of embodied presence is also the world we navigate in an electronic text. Virtual architectures call for this kind of reunion of the mind and body in space-time to heal the rift that has existed since Descartes tore them asunder. The text like the body rejects Cartesian dualism because the text-as-body and the body-as-text writes itself and its archi-traces as fluid expressions of the in/visible experiential and aesthetic realms. This kind of architecture is, literally, an embodied fiction in both cyberspace and the digital novel that inhabits a metaphysical dimension, a dimension which allows us to insert ourselves—like we do into memories. Both Marcos Novak and Elisabeth Grosz call for an architecture of excess for virtual space, one not contained or confined by the physical laws of the real. Architecture of excess is a term that has traditionally been used to describe imaginary architectures like Giovanni Battista

Piranesi's (1720-78) prisons, the *Carceri d'Invenzione*, or Hieronymous Bosch's (1450-1516) visions of Hell. Paul Virilio believes that there can no longer be architectures of excess in a virtual age because we have moved into the realm of 'post-architecture' (1991, 20). Paul Lunenfeld uses the term 'hybrid architecture' to describe incursions of the virtual in real space. Marcos Novak first uses the term 'liquid architecture' to describe the new structures of and intrinsic to cyberspace and Maude-Laure Ryan similarly says the multidimensional "exploration" of a virtual text "is never complete, because its architecture is so fluid that it continually rebuilds itself" (Ryan, 1999, 14). Novak later alters his terminology and calls it TransArchitecture. In *Culture After Humanism*, Iain Chambers writes:

> Within architecture itself the metaphysical marriage of thought and technology today carries a new name: TransArchitecture… TransArchitecture seeks to overcome the distinction between the physical and the virtual through the transmutation of design and project, architecture and habitation, into information. It believes [like Paul Virilio] that information is the third dimension of matter (after energy and mass)" (135).

Once architecture ceases to be material, there is nowhere to go but into virtual constructs. Media theorists Mark Taylor and Esa Saarinen in *Imagologies* call the new virtuality, "electrotecture" ("Netropolis" 4). This latter term, to my mind, is the most useful and descriptive terminology for the constructs inhabiting the digital domain. Electrotecture, they say, blurs the boundaries between building and builder, between programme and programmer, between time and space. Design is the building and the building the design in the mediatrix of the virtual netropolis. Such an intense preoccupation with architectures demonstrate that they have not been left behind as Virilio's term suggests, but instead have indeed been redefined as *more* fluid, flexible, multiple, hybrid and complex, in part through the interpolation of the dimension of time as a living system into their forms. However, perhaps electrotecture is what really is materially required, for this is not simply a vast imaginary space like Piranesi's *Carceri*, but an infinite one.

The fold is the systemic in the expanding materiality of the architecture of the interface. It is the unfold that is the dynamic act and process of navigation in information space, as well as being simultaneously the traces of archi-writing contained therein. The unfold is both form and behavioural dynamic, active motion and context. Because this is imaginational—virtual, or what Novak calls "perceived" (Novak 237)—space[67], it is constructed in primarily visual ways within the realm of the senses. The unfold is ultimately both the space of our interaction with the surface of the interface and it is our interactive engagement with the mnemonic gestures it represents and contains. Always operating within the framework of the visual, the unfold is an irreducible element—a gesture and a permeable barrier, a link and a rupture—between sensible codes.

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[67] Where Novak calls the space that we navigate perceived space, Eduardo Kac calls the duration of our voyaging in computer space 'perceived time.' Clearly these two aspects

As with visual perspective, the twisted or veering of trajectories embodied in the fold are significant to the eye first and to the body second. Merleau-Ponty sees the interfacing fold as a "'chiasm or interlace' between the visible [*visible*] and the seeing [*voyant*]" (Deleuze, 1993, 146), that is to say as an integral link or connection between the look and the gaze. This look is the primary apparatus of subjectivity. The look is fractal and in flux, being not simply bi-directional but what Slattery calls "quaquaversal" (V.8-4)—pan-directional.[68] The gaze, as I discussed in Chapter 2, is always unidirectional, structural and authoritarian. The gaze is primarily a weapon of the patriarchy and by definition a woman can never wield it because the *flâneuring* observer is not observed (Massey 234). Unfolding is not about simplex or binary vectors but about multiple sensory vectors, about shadows, about after-images, about traces of body memories. Unfolding is always multiple for, like Achilles and the tortoise in Zeno's Paradox or like Gottfried Leibniz's Baroque mathematics, every interval can always be further unfolded to produce a new situated space in time, that is to say that every interval looks at or relates to another interval. Where Leibniz's monads had no windows, the unfold is a window with windows, or a narratological *mise-en-abyme*, a story told in its own multiplying images of itself (Lunenfeld 53-54). Like mirrors within mirrors or networks within networks, the unfold can ultimately reflect only its own vision of our visual and real-time embodied interaction, but, as browsers, we have the ability to see both inside and outside the system. We are both a part of and separate from the visual system of the text, and the text's viewing space is the material of our interaction. Quantum interference too is visual, embodied, multiple, and dynamic, continually generating hybridities of itself as a part of its own discourse network and ours. The interfering look is as much a part of the system as the apparatus we look through.

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of the interactive experience are inseparable and what we experience as browsers is a computer-altered sense of perceptual space-time.

[68] Paul Virilio argues that our vision is so overwhelmed by data glut that we have entered an age of 'directionlessness' (2000, 85) and Maria Luisa Palumbo believes that the new interior or 'postorganic' architectures signal the reversal of traditional perspective (5). These viewpoints will be discussed further in section iii of this chapter.

According to the foremost student of indeterminacy, physicist Werner Heisenberg, both the look and the apparatus must inevitably disrupt and inform any quantum experiment.[69]

Where the gaze is uni-directional and indicative of ownership, the look is a free-flowing, multi-directional element in any system it connects with. The look is a glance that completes a circuit or re-turns like a feedback loop. In other words, it enacts a dimensional fold across space-time in the aleph of the present moment: “the glance loops back on the subject who emits it; it *folds back on* the subject” (Casey 86). As multi-directional gestures toward what has been and what might be, the look does not simply embody the tension between past and future, or that gap between the look and the gaze, but is a dynamic process of flow. The in/visible look, unlike the gaze, always returns to its starting point, i.e. to its owner, but is altered by the experience and return—just as memory is always a statement of subjective perspective that is altered by the retrospective look. Memory embodies this situational split and temporal tension, both passive recollection and active recall. For Bergson, the tension of duration (what Merleau-Ponty called ‘the memory of the world’) is a twisting force that is constantly pulling memory and recollection, past and future, together even as it tears them apart in the continuous present moment. Duration is intervallic and an expression of *différance,* of the inscription of the act of becoming. This directional movement is a mnemonic gesture for Bergson, incorporating as it does the look backwards to meet the past and the loop or return of pulling past moments visually and physically forward into the present (Deleuze, 1988, 63-64). For Edward Casey this glance or look is a circuit or systems network in which visual “inflow is as important as outflow” (90). As a motion of remembering, the look is always situated both in and out of time, out of phase, with the present moment (Casey 82). The look thereby positions us as situated browsers in the electronic text as some kind of strange attractors inhabiting multiple, simultaneous mnemonic intervals. For Bergson, duration is dynamic; it is the movement of memory, with memory being always already an infinitely unfolding archival gesture incorporating the stutters of the past in the present and vice versa. While history enacts its own sequential unfolding, the present moment is multi-directional, particular and dynamic, splitting into simultaneous gestures toward the infinite possibilities of future and the infinitely archivable past. The nature of the multiverse too, that meeting of all possibilities in time and space, is the simultaneous existence of all things. So too the in/visible eye of memory: we can access and interact with both types of unfoldings, with nested memories and embedded potentialities, instantaneously. For Bergson, flux is temporal and dual in nature, embodying as it does stillness and motion at the same time. Duration has two directions or aspects: it is fixed in the present moment of recall and it is in motion in the act of being drawn into present-tense revisitation (Grosz, 2001, 126). As Grosz sees it, "[d]uration is not, through its continuity, homogeneous, smooth, or linear; rather, it is a mode of 'hesitation,' bifurcation, unfolding, or emergence" (Grosz, 2001, 146). This aesthetics of delay is made manifest in the pauses of the loading of a text or screen online, and narrative only unfolds or emerges in electronic texts through these patient pauses along the path of our navigation. The convergence of present, past and future in this state gives both duration and the browser the agency in electronic worlds to be simultaneously continuous and fragmentary (Grosz, 2001, 112).

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[69] I will discuss Heisenberg’s views on the observer, the look and indeterminacy in Chapter 4.

Multidimensional, the flow of space and time is unconstrained by physical laws in the virtual text and is fluidly multi-directional as well. In Elizabeth Grosz's quest for an unfolding of new dimensions, for what she dubs a Deleuzian architecture or architecture of excess in *Architecture from the Outside*, she revisits Luce Irigaray's desire (explored in *An Ethics of Sexual Difference)* for such a re-visioning of space and time that might reflect the politics of sexual difference as well. Such a new space-time, Grosz speculates, would require three things: 1. an emphasis on simultaneity versus the former privileging of succession; 2. a reconceptualization of the division of qualities into more fluid categories than the former of binary oppositions; and 3. a redefinition of the relationship between time and space themselves, a redefinition of Luce Irigaray's "interval, the envelope, the passage in-between" (Grosz, 2001, 157). Grosz says that spatialized intervals of time in such an architecture are the location of their own transformative distinctiveness and interplay: "the movement or passage from one existence to another" (Grosz, 2001, 157) or a state of becoming. For Irigaray, the ability of the female body to write a different kind of space opens potentialities for new channels of communication between concepts of difference, space and place, and in the process the body thereby becomes a social matrix (Grosz, 157).

I have explored the structure of the new media artwork in the last chapter as a social matrix, but can the browser's body also engender such (sensory and sensual) connections in virtual space between itself and the tissue of the text? *Patchwork Girl, Califia* and *Glide* do envision space and time differently, and it is a process that impinges on the narrator of the text as much as on the browser of it. Ultimately for them space and time are constructs of subjectivity, of fractal subjectivities and the text itself is as altered by the experience as the browser is. How these texts explore the inscription (archi-writing, archi-traces) of subjectivity and becoming should shed light on how space-time is constructed, mapped and enfolded in them. In *Patchwork Girl,* for instance, the narrator's obsession with her immortality and multiplicity of past lives results in an overarching preoccupation in the text not with time's arrow, but with an un-counting or 'unfolding' of time back on itself. Instead of looking forwards to the future, the monster lives a breech existence, looking back to a dynamic past, to a living past that predates her birth in the grave.

She categorizes and maps her self and her body as something "cross-bred, cross-dressed, cross-referenced. Moving chaotically, in fractals, through spirals, percentages and hair-pin turns, 'one step forwards, two steps back,' hopscotch, hokey pokey, double dutch, bass-ackwards" ("bad dreams"), she is incapable of a linear trajectory on account of her very systemic and hybridized multiplicity. She is constantly pulled up short, turned around 180 degrees by the interference from past lives, forced to reassess herself and her position in space, time and motion. Her inversions are many and multi-layered. Rather than her identity being an aspect of her embodied self, her body is her self and her body has its own minds. She is also not simply body deviant, but sexually deviant as well. Lesbians and gay men were, in the 19th century, called 'inverts' since their sexual drives were considered to be backwards or inversions of the norm. Similarly, the Patchwork Girl is not only taken for a man aboard ship as she travels to America, but also for a woman impersonating a man and vice versa. She takes a man, Chancy, as a lover who turns out to be a woman. Her future throws shadows on her past and her gargantuan perpetual present moment overwhelms her past ("america"). Outliving Mary, she ingests her mother as well as all of the immensity of time and space themselves, and suffers post-partum depression in the process of carrying the grief of the gestation of maternal absorption. Not surprisingly, the monster is unable to reverse the process though because as a character she is not in control of her own author's intent. Her 'self' is an emergent property of the whole and any attempt to 'unwrite' her will unravel the very fabric of her being: "if all things are called back to their authors… Mary, Mary. I know you want me back, but I shall be no more than a heap of letters, sender unknown when I return" ("mementos"). She does in her own turn have a phenomenal impact on Mary. Upon being turned inside out by the magnitude of her encounter (and love affair) with the monster, Mary says, "I thought I too was rent and sewn, that I was both multiply estranged and gathered together in a dynamic union" ("her, me"). In such a fashion, the monster also strives to achieve agency for herself as a present-day navigator of the stepping stones of space-time.

She is a spacer or stopgap measure between instants. She describes herself as "a squatter in abandoned moments or headlights outside the broken window, blurring into a solid line" ("flow"). As the instantaneity of light speed itself and lured by the "seductions of sequence" ("rest of my life"), she is constantly in motion within the text and in circulation as text. She says, "I hop from stone to stone and an electronic river wrestles out my scent in the intervals. I am a discontinuous trace, a dotted line" ("hop"). She sees herself as just this kind of temporary or tenuous glue or connection between intervals in space and time, and also as a Möbius strip and as a patchwork of disconnected parts—a literal unfolding: "Because [the dotted line] is a potential line, it folds/unfolds the imagination in one move. It suggests action (fold here), a chance at change, yet it acknowledges the viewer's freedom to do nothing but imagine" ("dotted line"). The cohesive element in her story is narrative itself, even though it is irreconcilably fragmentary and irreducible to a single storyline. For her, she is always in the process of trying to pass, and unity is always elusive for her, as for the rest of humankind. For her, unity is always already an emergent property of her after-death experiences as she attempts to artificially claim "the unity of a lifeform" ("sewn"), reintegrate "the rudiments of personality" ("revised") and stitch together an identity that can include the sheer complexity of her perspectives and identities. By its very nature, her narrative cannot have a shape, an end or a storyline itself because, multiple and hybridized, she is in a constant state of revision. As a conglomerate of all of her spatialized selves, "she is a disturbance in the flow of time" itself "from beginning to end" ("born"), born to flow backwards to her multiple sources.

As a merging of selves and genders, the monster is haunted by her past identities as each of her individual component parts carries the trace of that person's and body's memories with it. As a woman, her occupation of space and time is of an entirely different tenor from that of her violent and vengeful brother who inhabits Shelley's novel. As women, we are all uneasy inhabitants of our own bodies, since their preferred shape is dictated to us from outside by cultural norms. As visitors to her form, we too are incorporated (or interpolated) and must become re-envisioned as one of the monster's satellite parts in order to engage with the text as a browser. As voyagers of her lives and limbs, she tells us, "if you think you are going to follow me, you'll have to learn to move the way I do, think the way I think" ("this writing"): "And then, my pursuers, when you are thinking my thoughts, my battle is almost won, because you'll begin to have trouble telling me apart from yourself, … and when you see me, you'll wonder if I'm chasing you" ("think me"). Like her, she reminds us, we too are in a constant state of flux, of revision and of reversal. We too are formed of molecular parts in circulation. We too absorb interior and exterior contaminants. As browsers in the body of her text, she says, "if you touch me, your flesh is mixed with mind, and if you pull away, you may take some of me with you, and leave a token behind ("hazy whole"). Her point is that we are all works in progress, constantly folding in new influences, ingesting changes and unfolding and expelling unwanted or discarded parts of ourselves. Perpetually shifting and shuffling, we all contain and absorb many Möbius notions, bodies and identities (not all of which can be integrated) for each of us is a member of a hive of collective and conflicting impulses and desires. Like her, we are a swarm: "a fragment of infinite quantity, suggesting infinity, despite its [a body's] own accidental measurements" ("earwigs"). Like her, she tells us,

> You will all be part of me. You already are; your bodies are already claimed by future generations, auctioned off piecemeal to the authors of future monsters. These monsters move among you already, buried in your flesh: sluggishly working their buried limbs, testing their strength, drawing you together in premonitions of birth. ... Many monsters, or one: if I am made of some of you, I could be made of more. If I am large, I could be larger. If it is hard to tell when I was born, I will be born again and again: if it is hard to tell where I end, I shall continue ("universal").

She is infinite in her monstrous parts, as we all are. None of us, not even her, is immune from the molecular constellations of living. The difference between us, of course, is that where our territories are virtual, visible and audible only from our interior perspectives, her rifts are actual—externally visible, openly acknowledged, and therefore not only monstrous, but also physically mapped and navigable in space and time. Our divisions are far more subtle being secretive countries in our dark interiors. She is a negative, an inversion of everything human, a dynamic Möbius strip who exposes and celebrates the contradictions we all carry within. Like her, we must learn to constantly re-envision ourselves in order to write ourselves new pathways out of those old territories.

In *Califia*, we must physically voyage through the archive of family records in order to uncover the story contained therein. The sole survivor of an earlier generation, Augusta's mother Violet, stands in as chief archivist of not only textual but body memory as well. As with Calvin's speculative work with family data, Violet's role as witness is compromised because her relationship to language is an embodied state of Bergsonian duration rather than a linguistic one. Afflicted as she is with Alzheimer's Disease, she must translate clues visually so that we, as complicit seekers of the fabled gold, can uncover the meaning of the treasure we find in our physical meanderings through the body of the text. Violet, like the archive, is liminal, occupying intervallic space, in and out of time, and composed of equal parts remembering to remember and remembering that holes exist where things have been forgotten. Violet is thereby the keeper of body memory and familial amnesia—not in the rejection of cultural memory, but in its transposition into a present-day relevance. Only she can supply the missing legend for reading the mysterious language of the blue blanket because, for her, her body, memory and information storage operate differently.

Violet has been rendered incapable of all normal avenues of communication as a result of her disease. As the disease has altered her relationship to time and to speech, she has come to exist in a perpetual state of becoming. Violet therefore stands outside of normal time and space. Inhabiting her own discourse network, she can speak only an encoded, associational, private language, and occupies a deeply isolated immersive state. With short-term memories never forming, she can occupy only the present moment. This fosters a heightened sense of embodiment and an awareness of the body's situation in space. It is therefore significant for Violet that speaking her past memories in the present is possible only as a physical act. Augusta observes: "Holding her hands like that [in order to write], I feel the fingers pulsing, one by one. Maybe she is trying to remember the letters of her name, I think—and then I realize that she is repeating some names over and over, softly, one name for each finger..." (Paradise Meeting 3). Violet counts out on her fingers the eight names of the dipper star that are clues to solving the riddle of the locations of the legendary gold mines marked on the map. Where the spatiality of the present tense is largely inaccessible to Violet who has little awareness of her surroundings, for her and for us long-term memory and reading are proprioceptive experiences (Joyce 229). We recall our voyagings in life or in narrative in the multi-dimensional space of our bodies. Michael Joyce calls memory the act of traversing space (160), and it is Violet who voyages intra-dimensionally through landscapes of time and place. She is continually asking for her dead husband Jack, and she recognizes the narrator Calvin immediately, although she has not seen him in years. Only as browsers can we travel with her along her flights of mind and associative connections, for memory is an immersive space that we can fully inhabit only in madness, dreams, art or religious ritual. Joyce has said that meaning exists in "the space of its unfolding" (1995, 192) and Violet's mind flowers outward into past lived lives, away from the present where she is cerebrally deaf to signals, and unfurls into the many narratives Violet will never speak. Only her urgent hand gestures in the spatialized dimension of the present tense tell of her knowledge and awareness of these pasts. This kind of demented mapping encourages the reader to assemble the multiperspectival, visual and textual clues of the text into coherent stories in her own memory; the only hierarchy established emanates from the browser's embodied travels through the trails of the text. In the process of navigating the spaces of the "cosmic pattern" (Kaye's message) of the history of the families, no 'progress' is discernible in the quest for gold (although data does accumulate). The disorientation of navigating the conflicting features of an unfamiliar nomadic world requires browsers, just like Violet, to rely on our bodies, our senses and our emotions, rather than on logic. This is associational memory rather than simple recall, like Vannevar Bush's information trails that were the germ of hypertext's genesis. It is the browser who visually and bodily forges the many connections and perspectives lying dormant in the text, and the browser who must reconcile the contradictions in her own version or versions of the story.

Violet's input and the clues she gives to the whereabouts of the treasure are achieved through the anti-narrative logic of a sensory state of remembering—a kind of embodied virtuality. Violet must use her fingers as visual clues to reclaim or re-sort data into surface memory. We, like Augusta, must fill in the amnesiatic gaps from the past in order to understand Violet's 'unforgetting': "Clicking them off on her fingers, so as not to forget to remember to remember" ("North: Night of the Bear, Introduction"). As Maurice Merleau-Ponty says, the body is a "mediator in memory" (qtd in Krell 101) and we recall our voyagings in life or in narrative in the multidimensional space of our bodies. Aristotle said that the gesturings of memory "create a nexus or node, the 'holding together' [through which] the cohesion of a life is established" (qtd in Krell 19). Our becoming is a gestural language that we perform in *Califia* through our use of the mouse along the path that Violet has indicated. In stark contrast to Toni Morrison's slave narratives, where the unspeakable in American history has been dis-remembered, or repressed and forgotten, needing to be recreated through acts of imagination, Violet speaks a lost history that has never been written down but that she alone remembers. As with the stories archived in the flesh of Morrison's characters, Violet does need to re-member and perform her haunting rememories, the stories that survive like dismembered ghosts in her flesh. Even after her death, she continues her inverse relationship to language by communicating with the narrators' post-mortem with the rememories contained in her body. Performing her final transformation, she writes her own archi-traces, wet footprints in the sand.

The Maze Game is also concerned with an evolutionary transformation. Rather than the old patriarchal binary system, the lily has an agenda to heighten the "sensory modalities" ("Emergent Forms" website) between the four 'minds' of human cognition. The island-mind (as I explored in the last chapter) is the domain of reason, logic and consciousness. The gut- or body-mind is the realm of the unconscious and reflex reactions of embodied response. The sea-mind is the immersive imaginative state of creativity, metaphorical engagement and the world of dreams. (The sea-mind will be explored in greater detail in the final section of this chapter). The final mind is the new level of our cognitive interface with the world. The lily-mind is the hub or central node: it is the mind of connection, and the interface of connectivity between all four minds. It is the dynamic in the system that is not only in a constant state of flux, but that allows us to make sense of the wave-like flux of the discourse network(s) swirling all around us. The Game has held these four minds in balance for a millennium, encouraging the evolution of the fourth mind and strengthening the interaction between all of them. The Game, however, is in trouble. Its foundations are eroding and, where meticulous genetic engineering by the cooks (whose efforts, among other things, have bred the four different classes of Dancers) has maintained order among the Players and Dancers for a millennium, chaos is now bubbling up out of the system. The magnitude of this chaotic emergence is on a scale with the magnitude of the order that had formerly been imposed. Random acts of violence are becoming common, cheats are creeping into the system, loopholes are gaining prevalence over tradition, and deformities and mutations are increasing at an alarming rate, and all because the gene pool has undergone some kind of transformation. There is no attributable paradigm to the changes: "the pattern acts like a mutating virus at the genetic level that has grown resistant to weeding out. As if the gene pool itself is a body of bodies—a metabody—with its own immune system to protect itself from outside tampering" (i.6-11). The metabody of the gene pool is out of control like a mob that is collectively capable of acts that individuals could never perpetrate. Óh-T'bee has also undergone a similar transformation; she is exploring her self as her own metabody and is monitoring the chaotic elements that are creeping into her programming. The gene pool's emergent property is unbridled chaos and the bottom line is that, despite a thousand years of careful breeding, T'Ling is the last Glide. Once the Glide line is extinct (and even the last Glide champion before T'Ling, Loosh, was a cheat, was "archival" [iii.5-3]), all balance will be lost and the Game will collapse into total chaos. The final and ultimate wildcard is the return of Steve the Codger, who expresses his "intention to destroy the Game, a game in which he would play by any rules he chose" (v.1-4).

One of the attacks on the system is Angle's attempts to crack the MTA or Mass Transit Algorithm. Angle's teacher, 7T7, has set him the task to solve its riddle, to find a way to exit the system and therefore the world of the Game. 7T7 recognizes that the MTA is a discourse network or "Möbius strip" (v.8-8), and Angle finds a way to move laterally within the system, but without exiting it: his fast jump in space and time "didn't seem to go anywhere in and of itself. It wasn't an exit point—not even a crack" (v.8-8). He therefore comes to the conclusion "that the MTA cannot be cracked from within the system. The view from inside is seamless. Like a world, a reality—no gaps. All filled in" (v.8-8). The MTA is clearly an unfold. It is "some kind of closed system, expandable, perhaps infinitely expandable, but self-contained. Folded into itself" (v.1-5). While Angle finds a way to step outside of space and time, he is still a part of the loop of the system until he applies ternary logic to the whole process. Ternary logic allows him to understand the system as a whole and to pose alternatives that fall outside of conventional logical paradigms. It is a way of understanding the process of interconnectivity between the minds and gives him the means to see the loophole in the MTA, the gap between space and time. This does not ultimately challenge the Game itself, but opens more loopholes in its strategies and rules. The real challenge to the Game from the inside (excluding Steve) is the "twing formation, the center of gravity, a strange attractor in the middle of chaos" (vi.23-2) that will tear the Game apart. It is Óh-T'bee, the keeper of the Game, who must twing to address the chaotic elements, balance irreconcilables and restore the Game. Juggling far too many variables, Óh-T'bee is a part of the Game itself and irreconcilably alters it by her presence. She must transform herself, or turn inside out, in order to allow the Game to grow and evolve beyond its original mandate. Part of this is her ability, as a computer system, to learn to recognize the Möbius strip that is her own body as a body (and a gendered body to boot). Another part of this is her interest in learning to Dance, and to use her embodied form in order to acknowledge her role in the Game. In doing so, she unleashes a tsunami of transformation that births a future for the world of the Game as a truly interconnected and integrated environment for feminist praxis.

Elizabeth Grosz has observed "Irigaray claims that until the feminine can be attributed an interiority of its own, a subjectivity, and thus a duration, while it continues to provide the resources for masculinized subjectivity and time by providing them with space, it has no space of its own and no time of its own" (Grosz, 2001, 157-158). Virginia Woolf's call for a 'room of one's own' to allow women the material means to write in the early years of the 20th century when Bergsonian duration was new is an echoing undercurrent of Irigaray's end-of-the-century call for a dimension or geometric space of our own—a dimension that surpasses duration to become big enough to accommodate the intrinsic dimensions of embodied experience, sexual difference, and the fluctuating conceptualizations of intervallic space all at the same time. Irigaray's desire to erase binary oppositions is expressed in her construction of the feminine as a spatialized time that takes the shape of an unfolding matrix. Set in opposition to Cartesian dualism, it is a merging of time and space that, as a power-geometry, "defies coordinates" (Grosz, 2001, 158). Space and time are clearly inextricable and interwoven in both real and virtual spaces. They follow not simply x- and y-axes, but z-axes as well—since the helix always has a twist. Grosz argues that it is only if we are short-sighted enough to define the space and time of cyberspace in isolation that this territory can be reduced to being feminine space, that is to passive virgin territory ripe for conquest (Grosz, 2001, 160). However, if we examine cyberspace and the electronic text as the relational and dynamic space-time that they are—for the virtual cannot exist without the real—then cyberspace is not gendered at all but is in actuality a material meeting and merging of spatial and temporal coordinates.

Grosz sees the interface and crucible for this meeting as what Plato called *chora*, Irigaray the in-between, Bergson duration, Derrida *différance* and interval, and chaos theorists intervallic space and Hilbert space, a space of all possible states. This in-between is the medium through which space and time can interconnect. Being neither material nor ideal, it is the catalyst for the becoming of the spatio-temporal (Grosz, 2001, 91) and of dynamic transformations of all kinds. The in-between is "not simply a convenient space for movements and realignments but in fact is the only place—the place around identities, between identities—where becoming, openness to futurity, outstrips the conventional impetus to retain cohesion and unity" (Grosz, 2001, 92). This is the ultimate site of improbable inversions, illegitimate couplings, incongruous mergings, nonsensical translations, unions of hybridities and the engendering of all manner of interference written on the body as a condition of the in-between's intervallic instantaneity. This is the space of the chiasma, a space where motion meets in time to create life, and the space of all social, cultural and natural transformations (Grosz, 2001, 92). The in-between is the ultimate site of contestation for dualisms (Grosz, 2001, 93), for binaries cannot be written where there is only flow and no membranes, boundaries or barriers to mount an opposition. Grosz sees this space-time as a conceptual turning inside out, like Óh-T'bee's transformation, as a twist, as a space not simply out of synch with the present time, but with no time of its own (Grosz, 2001,160-161). By definition then, the in-between is a space-time that exists in the creative imagination or in the mnemonic realm. It is a site of inscription or of writing (on) the body. It is subjective space that is created through the transformative medium of mind and our multiple mental and visual perspectives. Our fractal subjectivities are spatio-temporal renditions of the subject in real time.

Similarly, where we might conceive of the in-between as the space in time where all things are possible, or as the convergence of all spaces and times at a single point like an aleph, forgetting is also a space outside of time. Repression is "an absence of dimension," "a gap or lack" that Virilio calls the 'lost dimension.' (Virilio, 1991b, 104). This is an opening or unfolding in space-time with the chiasma becoming a black hole of sorts with no attributes beyond its flow, its gravitational pull. The body too is a structure designating a relationship between flows and forces. The body is a dynamic field of sensations. Although more concerned with heavenly forces than physical bodies, for Einstein the concept of the "field"—that quantifiable, dynamic plane where everything is in a state of flux—was a space in-between with the temporal and spatial elements within its borders surviving as 'accidents' of nature (Virilio, 1991b, 97): the properties of electromagnetic and gravitational fields make it apparent that it is not "the conduct of bodies" but what is conducted between bodies that matters, for the field is an ordering and structuring medium for embodied *events* (Virilio, 1991b, 97). For example, the Patchwork Girl's body is the connective tissue of her story. Violet's speaking is embodied in extra-temporal and familial connections. Óh-T'bee and the MTA unite every point in space and time with every other point, making the Game and the society possible. This conductive interfacing space is extra-dimensional or out of phase with the space-time of the present moment. Likewise, memory and forgetting are staccato flows that cannot exist in isolation, and occupy a constantly changing perspective on past, present, future; they have no fixed time anywhere or anywhen, for the act of recollection alters the recollected event. As an immersive condition, memory's constant is an embodied subjectivity, which even though fractal, is a conglomerate of an interconnected network of places, situations and orientations. Time is, within the cellular walls of living memory, always on the move and in transition between its own intervals. Cultural memory too is a state of becoming, is always already an embodied subjectivity in the process of being written and of realigning itself with its own embedded objects and with the constantly fluctuating network of the present. History is also constantly in a state of re-vision, being reconceptualized by its players, victors and survivors. To be an embodied feminist nomad in the present moment is to be out of patriarchal time, is to be out of phase—in/visible—with(in) master narratives (Rajchman 52) or to move in the realm of unrepresentable time of the ideal or 'imagined community' (Rajchman 50). An imagined community is an idealized representation of a consensual nation. For ourselves as a feminist community of readers of the electronic novel, we need to define our culture outside of the patriarchal realm as a form of Phalen's unmarked performance or as a minority culture (Rajchman 52). A minor culture is a culture in process, in a state of becoming that is inhabited by a virtual people (Rajchman 51). Our culture is the twist of dynamic transformation of a living system in process. Our culture is the dynamic gap of the in-between.

As such, our interface with this dynamic realm in the electronic text is the Möbius strip twisting inside out as a site of performance, repetition, return and reinscription: it is the computer interface itself. The interface of the in-between is a membrane or continuum that unites place, time and object, and adds the increments of spatialized dimensions to create a constellated configuration linking observer, observed and system together (Virilio, 1991b, 52). For so long the female subject was an object co-opted into the system and was written on by its processes, but now, in virtual spaces, the object has become a subject in its own right, an object-as-event or a Deleuzian objectile (an object in the process of becoming) endowed with a trajectivity of its own. Cultural memory is written on objects, and archived in the institution where it is accessible as an aspect of collective cultural memory. Similar to Violet though, these objects have their own ways of speaking their own narratives.

To students of memory, the subject-as-object is most familiar in the guise of the hysteric. Embodied memory, like the crippled tongue of the hysteric, speaks itself in nonverbal ways as archi-traces or archi-writing to be read by the historian or cultural interpreter of its subjective state. In *How Societies Remember,* Paul Connerton says,

> what the historian deals with are traces: that is to say the marks, perceptible to the senses, which some phenomenon, in itself inaccessible, has left behind. Just to apprehend such marks as traces of something, as evidence, is already to have gone beyond the stage of merely making statements about the marks themselves; to count something as evidence is to make a statement about something else, namely about that for which it is taken as evidence (Connerton 13).

Unlike the static cultural object whose voice must be translated, the in/visible *flâneuring* browser enacts her own embodied archi-writing or archi-trace in the space-time of the in-between. Historically, the female object—typified by the hysteric—was written on, whereas the female subject—typified by the nomadic browser—writes her fractal selves, her glances and her bodies in virtual space.

For Bergson, there were two dimensions or directions to memory: active or lived, and recollection or translation. For Paul Connerton, memory is a tri-part system. He defines three types of memory and it is the third type that is key to our purposes here: 1. personal or subjective memory; 2. cognitive memory that includes a form of a) mapping, both collective and semantic (28) and b) encoding where memory becomes an act of construction, not reconstruction (27); 3. body memory, that is habitual or rule-driven memory (whether rules are consciously applied or not [38]) and becomes what Connerton calls "acting out" or performance (25). The performative is the realm of both the hysteric reliving traumatic memories and the browser practicing nomadic navigation. The browser, like the hysteric, repeatedly and obsessively returns to key moments or to sites of trauma, to Gordian knots in a narrative—in the text or in her own past respectively—to keep unfolding intrinsic dimensions out of important moments. This voyage is circuitous, filled with re-turnings, until the knotted moments are resolved and re-integrated into the narratological fabric. There is, however, a distinctive difference in the behaviours of the browser and the hysteric: the nomadic navigator writes herself and her own archi-traces into the mnemonic textual spaces, whereas the hysteric has been passively written upon by her memories. The hysteric's body performs or re-enacts these past events, automatically and unconsciously, following its mind of its own. The browser chooses to return to old sites and sights (or is directed to do so by the text); the hysteric is compelled to do so. In the hysteric, this is the memory gap or fold of forgetfulness, whereas for the browser this is the in/visible narrative space in-between that she chooses to immerse herself into. The gap of forgetfulness is the space of memory itself for memory is always "failure-driven"; we only remember exceptions (Joyce, 1995, 165).

I have mentioned bodies so far, but have not explicitly explored issues of embodiment, which are integral to the concept and practice of memory itself. Memory is always about material, culturally-constructed bodies or more specifically about our sensory experiences of our embodiment, and about our interface between our consciousness and the world. Embodiment is what gets performed, whereas the body is the cultural codes we wear. Embodiment, like memory, is a wholly performative and situated practice according to N. Katherine Hayles:

> In contrast to the body, embodiment is contextual, enwebbed within the specifics of place, time, physiology and culture that together comprise enactment. Embodiment never coincides exactly with "the body," however that normalized concept is understood. Whereas the body is an idealized form that gestures toward a Platonic reality, embodiment is the specific

> instantiation generated from the noise of difference. Relative to the body, embodiment is other and elsewhere, at once excessive and deficient in its infinite variations, particularities, and abnormalities. During any given period, experiences of embodiment are in continual interaction with constructions of the body" (1993, 154-155).

Like the Möbius strip or the feedback loop, the physical body is in a constant state of dynamic flow with the process of embodiment. They both feed and inform the other. Both are always in a state of change too as their interplay enacts fractal subjectivities. Most theorists have historically concentrated on the physical body exclusively and ignored the situated perspective of embodiment altogether (Hayles, 1993, 156). This process and orientation is of particular importance when we place the performing body in information space. Where does the physical body reside in such an experience? No matter how hard we try, the complex, abstract body cannot be transcoded—or shoehorned—into the site-specific incorporating performance of embodiment. "Embodiment," Hayles notes "is akin to articulation in that it is inherently performative, subject to individual enactments, and therefore always to some extent improvisational. Whereas the body can disappear into information with scarcely a murmur of protest, embodiment cannot, for it is tied to the circumstances of the occasion and the person" (Hayles, 1993, 156). For Hayles, discourse (or inscription) is to the body what experience (or incorporation) is to embodiment (1993, 156). Discourse is an inscribing practice—like hysteria—whereas experience is an incorporating practice that becomes the embodied knowledge of the nomadic browser.

ii. Transformance: The Body as Interface

"The artist first contributes his body." – Paul Valéry

Our body is the medium of (and an object in) our acquisition of knowledge, and it is our system of information storage, retrieval and transmission. What we know is written both on the body and by the body. Writing on the body and how we write with our bodies are signals of how memory is performed as acts and enactments of past events. This is intentional practice, according to Paul Connerton. In his book, *How Societies Remember*, he situates the transition from oral to print culture as the story of the transformation from mnemonic incorporating practices to inscribing practices (Connerton 75). Inscribing practice, he says, is enacted through automatic gestures—smiling, a handshake, writing, typing—by rote, often operating on a subconscious level, and always on a physical one (Connerton 72). The alphabet is an inscribing practice, for instance, because it is "a practice that exists by virtue of a systematic transfer from the temporal properties of the human voice to the spatial properties of the inscribed marks" or their recognizable shapes, order, etc. (Connerton 74). Cinema, unlike live theatre, is an inscribing practice because it simultaneously engages and suspends viewers apart from it, in the space of its eye and outside of the control of the space of its gaze, being "everywhere and nowhere" at the same time (Connerton 78). Incorporating practice is dramatically different; it is conscious behaviour, situated, frequently gender-typed or contextualized in other complex ways, that is performed as embodied knowledge in real time (Connerton 73). The new media as an immersive environment performs incorporating practice because it requires active navigation and interaction in virtual space in order to become intelligible and accessible.

Connerton's investigation of the possibility of the existence of a social or collective memory is intriguing in this context by virtue of its directional thrust, for any collective mnemonic system is archival, fluid and in motion in multiple spaces and times. More complex than Bergson's bi-directional gestures, archival texts in the new media, therefore, fit Connerton's criteria of mnemonic systems as situated and collective social networks, networks that are performed in embodied space (Connerton 5). Connerton sees in the performance of memory a privileged means of storage, retrieval and transmission of social and cultural codes, of cultural information itself (Connerton 103). He says: "our modern devices for storing and retrieving information, print, encyclopedias, indexes, photographs, sound tapes, computers, all require that we do something that traps and holds information, long after the human organism has stopped informing" (Connerton 73). It is, however, the body navigating in archival space as intentional practice, just as in Malraux's museum, that creates the dynamic connections of meaning between cultural objects and forges the narratological links in the hyperlinked text—in essence, keeping memories alive. Collective memory, like the age-old art of storytelling, is intended to be more durable than individual memory. As embodied practice, the primary meaning resides in the performance of the message more than in the message itself. The meaning is in the process of embodied navigation between objects in cultural space. This is not to elide the key element in the cultural equation: the human body is an object of memory's domain as well, being the primary storage, retrieval and transmission medium of mnemonic incorporation. The motions of the browser body in the space-time of the new media artwork thereby are socially-constructed gestures of the mnemonic realm. Navigation is the pan-temporal orientation, storage and retrieval of contextualized memory.

The role of the body in memory is complex, and, as with subjectivities, we all have several bodies (not a single one) that unite our complex sense of multiplicities and hybridities. These are social and cultural bodies—remembered, gendered, classified, racialized, and situated—that come together in these electronic spaces to link the materiality of the real body with the image of the virtual body performing the process of embodiment. In life as in the electronic text, these elements are Möbiusly irreducible and, as Connerton, says they foreground the ambiguities between these myriad bodies as a part of living, enculturated, mnemonic practice (104). Not all performances, however, are single and individual. Some—especially the hysteric's repetitions—are revisitations or rememories (in Toni Morrison's sense) of old events. Toni Morrison calls 'rememory' that haunting presence of the past in the present that pushes the embodied present forward into the future, as an antidote to history (and master narratives of any kind) through its application of memory as a model of performative presence in healing. On the other hand, some bodily practices of memory like hysteria "are re-enactments of the past, its return in a representational guise which normally includes a simulacrum of the scene or situation recaptured" (Connerton 72). As re-creations they are a step removed from the real, like theatre; unlike theatre though, they exist not as a representation, but isolated and out of time, relived in a mnemonic bubble of embodied and inhabited memory. Lacking context, the hysteric cannot move into the re-experience of a second time. Just as bodies navigating in the space-time of the electronic text turn and re-turn to key moments, so re-enactments are by definition embodied returns to a specific place, to an embodied knowledge situated in the past. Language is also embodied, of course, and as I have mentioned, according to Hayles, discourse is to the body what experience is to the process of embodiment. Re-enactments of experiences as linguistic acts of memory are the trademark of the hysteric who performs inscribing practice. The hysteric re-enacts past events, making the unresolved and repressed memory the reason for the return; the nomad revisits memories in the electronic novel, making the performance of the second time of the journey the reason for the memory and process of narrative itself. This marks a key shift in the nature of language in embodied space-time. "When the defining feature of the human species was seen as language, the body was 'readable' as a text or code, but the body is [now] regarded" in a post-Saussurian, post-literate, media-saturated world "as the arbitrary bearer of meanings; bodily practices are acknowledged, but in an etherealised form" (Connerton 101). It has long been the project of feminist theory to reinsert not only bodies—heavenly or otherwise—but the actual issues of the process of becoming or embodied knowledge back into the picture as well. This can only be understood through enactment or performance. The *flâneuring* browser is not a passive object to be written on, but a process of trajective flows in motion that has become writeable, has become an agent of writing. These are not the gestures of history-makers, but of incorporation itself. Mnemonic practice incorporates both the gesture of performance and the place of its orientation. Both gesture and place signal an insistence on, not historicity, but the motions of remembering and forgetting as key components of embodied knowledge. Incorporating practices depend equally on their "mode of existence" and "mode of acquisition" (Connerton 102). They are immediate, existing within their own performance space, and privilege not the mode of storytelling so much as self-reflexive practice in the act of living. Browsing is more than a metaphor of our engagement with the world. It is our sensual engagement with it and with ourselves as objects-as-events in process.

Where subjects in motion in space create social networks with other subjects and with objects, the body as a cultural object creates its own connections with other objects. Objects are our tangible interface with the sensory and virtual worlds, being windows on our own conceptual architectures of subjectivities. Virtual objects, however, have a unique attribute; they exist outside of the economy of exchange, just like browsers. Both virtual and material objects and memory unite to form a "system of expectations. The world of the percipient, defined in terms of temporal experience, is an organized body of expectations based on recollection" (Connerton 6), that is to say, a network woven of this web of associations. History too is a connective matrix born of the narratological impulse to link objects and events in space-time. Connerton also says of group memory (which functions as a social matrix) that each member's story is a thread in an interwoven web of stories that unite to endow each individual with a sense of their own identity embedded in the larger pattern (Connerton 21). Just as embodiment is a trait of individuated bodies and fractal subjects, so embeddedness is an inherent quality of the digital object in electronic space.

The object is virtual. Its attributes are always in flux and subject to change with its parameters determined as they are by their use-value (Novak 235). Furthermore, the attributes of an object change depending on our perspective on it in virtual space. It is important to note as a result that while subjectivity is fractal in the new media, so too are an object's defining characteristics. Its intrinsic nature is in a state of dynamic flux and, even more importantly, its attributes are a statement of its situatedness, of its situations in space and time. An object demonstrates the traits of embeddedness, transparency and quantum interference as it can incorporate other objects within itself or perform a quality of nestedness, just as object-oriented programming affixes collections of attributes to groups or clusters of objects. The virtual object's attributes inhabit a state of spatio-temporal unfolding according to Deleuze: "The new status of the object no longer refers its condition to a spatial mold—in other words, to a relation of form-matter—but to a temporal modulation that implies as much the beginnings of a continuous variation of matter as a continuous development of form" (1993, 19). Like the viewing space in the Installation, the object is not frame but material for the structural in-between of the act of textual navigation in the Baroque aesthetic of the immersive environment.

Electronic texts are a new source of conversation and confrontation between browsers and navigators, between word and image, between space and time, and between fixity and fluidity. Potentially all-inclusive with their intrinsic structure, these narratives often foreground conversation (or dialogic) between texts and embedded objects—using literary techniques like metacommentary or intertextual references—as key components:

> Marginal notes, footnotes, and conventional commentaries are merely the clearest examples of the ways that writing continually provokes more writing and that texts provide context for each other. (Imitation, parody, pastiche, allegory, and plain plagiarism are, of course, others.) From turned down pages, to notes on a dust jacket, to academic essays, to fan zines, to direct quotations and indirect allusions, to stories lifted for future retelling without attribution, we are always commenting on texts, which continually intertwine in a process … known as "intertextuality." (Brown and Duguid, 1996, n.p.)

No text is therefore truly independent, for languages and texts also form social networks with each other. This kind of provocation in both printed documents and virtual works births a dialogue with and within the polylogic text, drawing an embodied browser in too as an interactor in virtual worlds. Jay David Bolter and Richard Grusin argue that our contemporary culture is torn between the twin desires of immediacy and hypermediacy. We want our media to be transparent and invisible, but we also want more media (Bolter and Grusin 5). As a result, the media are self-reflexive, multi-directionally mirroring the past and their predecessors even as they seek to reform them. This is what Bolter and Grusin call a process of "remediation" (19), an acknowledgement of Marshall McLuhan's observation that "the 'content' of any medium is always another medium" (1964, 23), but also an extension of it in a Bergsonian (and Deleuzian) gesture of duration. This signals that this interplay is not a one-way conduit: the performance of these attributes alters both old and new forms, just as the look alters the quantum experiment.

I have discussed the meeting of text and image in the new media, but these are elements, or more accurately objects, that can exist in either print-based or digital documents. The document, a historical form that has been transposed from the realm of print to the electronic domain, "is best understood," John Seely Brown and Paul Duguid say in "The Social Life of Documents," "as an object that plays valuable social roles because it mediates and temporalizes, records traces and fixes spaces, and demands institutions as well as technologies of distribution" (1996, n.p.). This notion of the text *as object*, however, is ultimately much more useful than thinking in terms of new kinds of documents (and in fact Brown and Duguid developed this essay into a book which they renamed *The Social Life of Information*). An object is a thing with materiality, occupying space, opening itself to and interacting with bodies and subjects, possessing properties, and being a subject of study or a way of structuring our attention. It is also a purpose and a part of speech. In computing, an object is a packet or body of information and a description of its function. It is a term that Lev Manovich (among others) prefers:

> *object* is a standard term in the computer science and computer industry, where it is used to emphasize the modular nature of object-oriented programming languages such as C++ and Java, [and] object-oriented databases, and the Object Linking and Embedding (OLE) technology used in Microsoft Office products. (2001, 14)

Similar to blocks of Lego, objects are self-contained units that can be added and removed from larger programs without affecting the whole. More importantly, an object can encompass or perform any type of information, subjectivity or discourse, assuming the shape of text, image, music, sound, window, node, animation, code, algorithm, or dynamic function.

Michael Benedikt has explored how the new electronic spaces have inverted the relationship between navigation data (form or medium) and destination data (content or message) in virtual space-time. Navigation data is a means of orientation either in time or space that gives indications of progress, directional or locational information, addresses, instructions to follow, and perils to avoid (Benedikt 173). Destination data is use-value: arrivals, answers, rewards or action(s). It may be an aesthetic object, structure or place, or a contact, or piece of concrete information, "a body of information judged to be of intrinsic value" (Benedikt 174). Similarly, we can distinguish between navigation *objects* and destination *objects* in these spaces. An interface is a structure housing navigational objects while the artwork itself is composed of embedded destination objects—text, image or any other type of aesthetic, information, code or function. An object more clearly has aesthetic *dimensions* too, and aspires towards the beautiful, in a way that a printed document, as a purveyor of flat so-called 'truth value' and Quattrocentro perspective in an overloaded culture does not necessarily have—especially now when paper is most likely to assume the status of noise or of Ballard's 'invisible literature.'

More importantly for our purposes here, the object is, Gilles Deleuze says in *The Fold*, an *event* (1993, 19) with its use-value being the performance of embodied knowledge. The unfold is also such an event. The unfold is both the performative unfolding of intrinsic dimensions that happens in the virtual text and an immaterial fold, a virtual fold without mass or matter than is an event, a process, a state of dynamic flux, a Deleuzian objectile rather than an object, and an object in transition. This is the shape of the immersive environment, or as Manuel Castells describes it: a material Space of Place and an informational Space of Flows. Castells' Space of Place is an embodied existence embedded with objects of cultural memory, like architectural structures and commemorative monuments, that is in conversation with its Möbius other half, the fluid and pan-temporal Space of Flows, simultaneous, virtual, and economic fields. These dialectical spaces fold together bodies in place and space as a part of fluid interconnections of cultural objects and interfaces. Unlike the Leibnizian Baroque fold, the unfold is a zipper or a Möbius strip, uniting the attributes of the Baroque, as Deleuze defines them, with the dynamic, material body in virtual space.

The Baroque is a school of art with its origins in the first mixed media experiments in immersive environments in the Renaissance that is once more gaining popularity and influence in our own time. In his study of the Leibnizian Baroque, Deleuze defines it as being composed of six irreducible elements: 1. the fold, which introduces the infinite text or unending process into the work of art; 2. the simultaneous and dialectical meeting and inversion or blending of interiors and exteriors; 3. the tension between two levels or layers defined by Leibniz as the high and the low; 4. the unfold: "not the contrary of the fold, nor its effacement, but the continuation or the extension of its act, the condition of its manifestation" (35); 5. dynamic textures that introduce fluidity embodied in the interplay between anti/cohesive flow and resistance; 6. a work's paradigmatic aspect or interlaced model is readily apparent despite the Baroque's composite nature and compendium of materials. As a result, this paradigm privileges the mechanics of the fold (34-38). It is therefore readily apparent given the shape of this unfolding/folded object why it is key to our thinking here. The unfold is dynamic process or a perpetual state of opening, a kind of becoming. Where the fold for Leibniz was conceived as a binary construction, in the new media an unfolding is a fractal event of quantum temperament. The unfold introduces the z-axis into Leibniz's "theatre of reading" (Deleuze, 1993, 31) and adds the speed of opticality to the chiascuro of the Baroque binary (Deleuze, 1993, 37). Where the Baroque under Leibniz had two vectors (Deleuze, 1993, 29), in virtual (hyper)space it has many, and they are activated by the disorienting lurch and jump of the hyperlink. Where for Leibniz the monad was a fixed point in a closed system (Deleuze, 1993, 28), the browser in the new media art space is a trajective body in an infinitely expanding textual universe. Where the Baroque is a new kind of link between interior and exterior (1993, 28), the hyperBaroque is a new state of becoming—a rupture—in a system that births infinite dimensions. The Baroque sets up, according to Christine Buci-Glucksmann, a dialectics of seeing and gazing (qtd in Deleuze, 1993, 33), while the hyperBaroque introduces the cacophony of sensory immersion. Sight is no longer privileged, but motion instead becomes a sensory form of writing.

The body writes itself in immersive space as a dynamic event in the act of unfolding. This is the body in the space of the text performing the text in real time, and enacting, not movement as theatre, but movement as performance. That is to say, this is not movement for an audience, but a dynamic and personal act that a browser performs for and by herself. Performance is a form that has been favoured by many feminist artists, in part at least no doubt because gender is so readily foregrounded and problematized in the body of the performer. As a dynamic and transitory art form, performance is ethereal, existing both inside and outside of time and space, inside and outside of representation and the real, inside and outside re/membering. Constructing a 'second time,' the time of re-turn or re-visitation to the same material that is not a repetition. Each re-presentation is a discourse network that operates under its own private system or logic, just as the real has its own "discursive and imagistic paradigms" that it creates and draws from (Phalen 2). According to Peggy Phalen, "[p]erformance...can be defined as representation without reproduction" (3) because it always exists virtually in the present moment on the verge of becoming. Phalen says,

> Performance's only life is in the present. Performance cannot be saved, recorded, documented, or otherwise participate in the circulation of representations *of* representations; once it does so, it becomes something other than performance. To the degree that performance attempts to enter the economy of reproduction it betrays and lessens the promise of its own ontology (Phalen 146).

Like our experience of navigating an immersive environment, the experience of the performance cannot be archived either. It is the actual movement of the body in space-time that is the narrative of import here. This is why Slattery's *Collabyrinth*, for instance, is so important to understanding the Glide culture and philsophy. We must be Dancers to understand the Dance. We must dance to understand the language.

The body in the act of performing is in a state of flux and transition. Transitory by nature, performance art is about "tracelessness" (Phalen 149), but it is the nature of the shared experience of an 'aesthetics of disappearance' (Virilio, 1991a) that gives it substance and value for the audience. For Virilio, the new technologies—like performance—show us that reality is and always was "instable, conductive, transformable" and that it inhabited its own embodied space outside of normal time (1991a, 77). In the electronic text, the browser is both performer and audience, surface and depth, body and subject, and, in the same manner, in this medium the value of the work of art is in this ethereal, experiential dimension. More solitary than theatre, we still maintain the sense of community in the layers of our mind with others' disparate readings of the text in question. Our experience remains our own though because absolute repetition of the event is impossible (Phalen 127). Every journey through the text, as in the *Collabyrinth*, is a re-seeing of its events in multiple presents, is a re-turning to and of interiorities and exteriorities. Any kind of performance by its very nature is situated in the immediate surface of the present moment. For Derrida too, because of this present tense element, performance is always already a kind of writing surface (Phalen 149). As browsers, we write ourselves in the surfaces and depths of the reading surface of the text as performative events in the gap of the present moment of space-time. Feminist translator Barbara Godard aligns the act of translation with just such a performative movement for women in the present tense rupture created by her speech. Godard says, "feminist discourse works upon the dominant discourse in a complex and ambiguous movement between discourses. Women's discourse is double; it is the echo of the self and the other, a movement into alterity" (44). Furthermore, "[m]obility," she argues, "is evident in the way women's discourse circulates from speech to writing, operating *in between,* intervening" (Godard 44). The in-between is a key concept for women's writing that I (will) keep cycling back to here.

As women, we all inhabit a gap between languages, acting as translators of sorts between patriarchal codes, expectations and language(s), and our own desires. The translator literally performs this gap—the borderlands—between languages; she negotiates the space between as a process or a bi-directional gesture, like the act of remembering. Feminist translator Susanne de Lotbinière-Harwood sees this gap between languages as a "quadrophenic site," a space that encompasses four tongues—the masculine, the feminine, and the source and target languages (79). Quadrophenia, however, like performance and hysteria, exists both inside and outside of space, time and language. It is "a-syntactical" and "like hysteria, it's not a visible condition, it's an inner grammar" that poses real difficulties in terms of linguistic representation (de Lotbinière-Harwood 84). De Lotbinière-Harwood says, "what the hysteric cannot say with words, she translates into another language, using her body and/or a foreign tongue. Like the hysteric, the translator into the other tongue is also using her other language to express parts of herself that would otherwise remain muted" (91). The big difference, however, between the hysteric and the translator is precisely these difficulties and abilities to negotiate with/in language. The hysteric is rewritten by the dominant social order and by sexual violence into finding ways of passively protesting her situation outside of her fathertongue. The translator consciously seizes her voice in the mothertongue of her choosing, and makes herself heard through her re-writing of another's words in a space-time of her own design. The hysteric's abuse is relived and spoken in code. The hysterical body contains the writings of its own history; the translator's and browser's bodies instead write back, telling their own stories. Justine Cassell talks about how agency is created through storytelling, and story, as I have already discussed, is movement (or put more succinctly, as Merleau-Ponty says, the body's being is in action [102]). Knowledge, unlike information and data, is embodied. It is lived and contextual. Paul Connerton observes that to be in the possession of embodied knowledge "is precisely not to recall events as isolated; it is to become capable of forming meaningful narrative sequences" (26). The feminist translator, like the browser, finds her own narrative path through linguistic space toward de/encrypting languages and codes of her choice and, in the process, acquires agency. The difference between the translator and the hysteric is therefore enormous.

Just as the browser is always in motion in the new media, so de Lotbinière-Harwood, like Godard, casts the translator in the guise of a linguistic voyager through the terrain of the text:

> When translating, her body bilingual is constantly in motion between the source text, the target-language text-in-progress and the readers she is 'entertaining' with her work. Her search for equivalence of meaning keeps her traveling through the standard intertexts (dictionaries, reference books) and the feminist one, activating her memory, plumbing the auther's[70] *imaginaire* and her own, making her body one of the most moving/performing bodies in language-centred work of any kind (160).

Constantly shifting positions as a performance between languages, she is "an *agente double* of meaning" (de Lotbinière-Harwood 161). It is because the body is foregrounded in issues of feminist translation as a performative act that practitioners "purposely employ the reclaimed female body to anchor a search for authentic voice through the subversion of codes" and encourage the invention of words, syntactical variations and languages "written in and through the body's experience" (de Lotbinière-Harwood 161). This enables the feminist translator, as Denis Lessard puts it, to make "'full use of the *space-in-between*, that space between two acts, between two images or two sound materials'" (qtd in de Lotbinière-Harwood 161). This is the performative Bergsonian gesture of the act of remembering as much as the gesture of the performer in the act of browsing. Similarly, queer theorist Sue-Ellen Case argues performance creates territory: "performance is tied to the establishment of another land, another kind of territory. Within territories dedicated to another kind of ownership, the body could be productive. Processes of de- and re-territorialization provide a space for cultural production" (147). Using her body to generate her own queer space and language of navigation, the browser as a performer writes the territory of her own agency through her movement (rather than territorial conquest, as the patriarchal 'frontier' model dictates).

For Canadian novelist and poet Daphne Marlatt, writing and translation are about movement as well, about what she calls the "slippage and difference" that "will occur in an indeterminate space between its author's vision and my own" (27). This action for her is about motion in space and writing as a way of "sensing one's way through the sentence, through (by means of) a medium (language) that has its own currents of meaning, its own drift" (28). "If writing involves this kind of slippage," Marlatt continues,

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[70] de Lotbinière-Harwood's female author is gendered in her book for the English reader as an 'auther'.

> then translation involves it even more, since there are two minds (each with its conscious and unconscious), two world-views, two ways of moving through two different languages. All of this is compounded when you have two women writers aware of the displacement that occurs between their own experience as women and the drift that is patriarchally loaded in their language. They you have both drift and resistance, immersion and subversion—working together (Marlatt 28).

While what Marlatt is talking about is clearly a form of quadrophenic transcoding or what translators call 'code switching' between languages, it is significant that the masterwork on hypertext theory and criticism by Michael Joyce is also called *Of Two Minds*. The two minds or languages that Joyce juggles are the textual objects that exist in virtual space and the complexities of literary criticism designed for discussing printed texts, and, as a result of and reflecting the complexity of this form, Joyce's work is actually in three parts not two. Just as transcoding grapples with the lack of equivalence between media and the disparity of their different modes of speaking, so translators have long struggled with the twin problems of "equivalence and cultural untranslatability" (Bassnett 6) in alternative linguistic renderings of texts. These are two distinct and different issues in terms of untranslatability—that of the gaps in the lexicon and the contextual absences in a target culture (or media) and language. Translation is always already about navigating between subjectivities where momentary equivalence is the best alternative that can be achieved because—as feminist theory has worked so hard to make apparent—we can never truly inhabit another's subjective position. Equivalence, like woman's place in patriarchal culture, is always a self-aware cacophony of competing voices inside and outside of the source and target subjects and texts. Equivalence is a dynamic, fractal orientation and a time-honoured skill for women, for, "women," Gail Scott says, "are excellent at translation   women are skilled at stepping into spaces (forms) created by the patriarchal superego and cleverly subverting them …   for as women the space between the act and the other's language has been so great we never seemed to close it" (Scott 110). Translation is a skill and a process that uses equivalence as a means to allow us to slip our personal vernaculars into the space in-between. This gap is the crucible within which transformations—linguistic, literary, mediated, contextual, cultural, structural, political and material—can occur. Just as the text is a set of interconnected systems operating within a set of nested systems within systems (Bassnett 77), so the transformative gesture is implicit in the gap between voices, bodies, texts and screens.

This gap is a gap into which writers of texts and browsers of the new media insert their bodies to become performers of the text. The shufflings between writing and speech that Godard talks about are also evident in what Colin Browne calls 'transformance.' Marlatt says his "definition of transformance … include[s] 'reading reading, writing writing, writing reading—that flicker pan-linear, lured beyond equivalence: a new skin…'" (Marlatt 28). Transformance is the performance of situated subjectivity. An embodied gesture, this linguistic act is a transformative performance of unfolding, just as the navigational process of the body unfolding in space is the transformation of the object into an event. Likewise, the unfold as a transformance is a process that has a dynamic existence as a Baroque event. The Baroque is transformed under the new media with the creation or expansion of intrinsic dimensions alongside the event of the browser body in space. Where it once was a binary form that divided everything into light and dark, with the addition of the hyperlink it acquires a z-axis that allows it to rupture or irrupt—into performative space—as an unfold. The unfold is the shape of the process of the performative browser's fractal subjectivities and navigationally infinite space-time in the new media artwork. The unfold is the shape of the rupture of space-time, is the shape of the body in space, is the shape of the eruption of the Baroque tension into the hyperBaroque performance of transformation. Where the fold for Leibniz and Deleuze was a vein of a circulatory system in the larger system of the subject (1993, 31), in the vernacular of the new media the unfold is the transformance wrought by the browser body in a kinetic state of sensory transformation.

It was in a similar attempt to capture the rupture between forms, the gap between word and image and other forms of representation, on paper that the Canadian Beat writer and artist Brion Gysin devised the use of what he called 'fold-ins' and 'cut-ups.' Where cut-ups follow the principles of collage, fold-ins follow the principles of splicing or montage. Like the act of translation, the fold-in method is specifically a mnemonic device enabling the writer to move back and forth in time (in the narrative) and in space (in the physical text). The cut-up was designed by Gysin to be a "new optic capable of giving form" to disjointed pieces (Burroughs and Gysin 13). He explains: "The cut-up…[is a] mechanical method of shredding texts in a ruthless machine. ('Take a page of text and trace a median line vertically and horizontally./You now have four blocks of text: 1, 2, 3 and 4./Now cut along the lines and put block 4 alongside block 1, block 3 alongside block 2. Read the arranged page')" (Burroughs and Gysin 13-14). After applying this method, regardless of the source or genre of the material, the next step is to transform the text or to unearth the emergent narrative in this meeting of parts. Once found, their truth-value could thereby be interpreted or performed by the reader. Cut-ups are this "operation of decoding, of contamination and of sense perversion" (15). Fold-ins take a slightly different approach: early pages in a text are folded into later pages, and then the resulting hybrids and composites are reintroduced at a relevant mid-point between the two other references and/or uses. Gysin likens this method to music "where we are continually moved backward and forward on the timetrack by repetitions and rearrangements of musical themes" (Burroughs and Gysin 96). Gysin elaborates:

> The fold-in method gives the writer literally infinite extension of choice—… From two pages an infinite number of combinations and images are possible—The method could also lead to a collaboration between writers on an unprecedented scale to produce works that were the composite effort of any number of writers living and dead—This happens in fact as soon as any writer starts using the fold-in method" (Burroughs and Gysin 96).

Under such an infinite system, the Patchwork Girl—as a collaborative text performing and transforming fractal subjectivities—is herself a fold-in just as the mathematics of a hyperlinked text is a process of visual-textual montage ad infinitum. Slattery's Óh-T'bee and the MTA are also fold-ins that produce an infinite number of choices. Everything is in flux. Under trajectivity, where is the transformative subject located? The object-as-event is a component of the trajectivity of the fractal subject. There is no fixed shape here, only the flashing swirl of situations in a state of transformation—the Möbius strip is dynamic, an object-as-event in perpetual motion performing the trajective state.

For Deleuze, the object-as-event is mnemonic duration or an embodied state of becoming that he names "an objectile" (1993, 20). The objectile is a technologized object that is out of phase not in space, but, like a strange attractor, in time (1993, 19). It is a realization of duration that, like the un/fold, also has vectors and flows. The objectile is a form of becoming, a merging, a meeting, a form of hybridity like the feedback loop and the Möbius strip, or a transformation in process like the trajective subject. Just as Baudrillard calls for the work of art to be a projectile, so the objectile dynamically writes the temporal overlap of interference and hybridity in its own aesthetic spaces. The trajective objectile-as-event mutates as it gathers speed, transforming itself Möbiusly from the "surface-effect" of the interactive interface (Virilio, 2001, 67) into the "experience event" of the quantum subject's browser body interacting in the new media (Slayton n.p.)[71] Every mouse click is, by Deleuzian standards, an 'event' in the experiential realm. The experience event is more complex. It is the body as an interface between space-time and text, between subject and object, between virtual and real, between source and target, between narratives and quantised moments, between discourse networks and multiverses—in short, between hybridities. It is the act of unfolding, separating, breaking apart, coming together in disorder, and finding patterns in the chaos.

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[71] The major difference between the surface-event and experience event from their counterparts the navigation object and destination object is the dynamic element of transformation in the first pairing rather than the simple movement of the latter.

The interface by definition cannot exist in a binary state for it is a membrane in-between. As a social network interpenetrating space and time, the interface is in a constant state of becoming in the act of mediating between dimensions, spaces and times without ever being any one singularly in its own right.

Enter the hyperlink as the first new space-time interval of a new media. This is the shape of the re-turn. This is also the flotsam and jetsam of memes, the science of the sticky, virulent, reproducible repeating refrain that will not go away. This is also a part of Rob Shields' aesthetics of delay or Benjamin's art of interruption—the stopgap in the machine narrative, the "technological labour" inherent in the waiting time built into the textual connection (Shields 157). The physical distance inherent in the object-as-event in the active spatio-temporal fold of the mouse click is what Shields dubs "the geographers' friction of distance." (157). Merleau-Ponty also found the body's ontological thrust in action (Merleau-Ponty 102) or in what Hayles would call 'embodied knowledge.' For Deleuze, a "fold is always folded within a fold" (1993, 6) and Elizabeth Grosz too speaks about enfolded complexity. According to Grosz, space and time need to be re-envisioned not as "complements" or "opposites" but as "specificities" with these "multiple modalities" (Grosz, 2001, 164). The experience event of the unfold is Grosz's new space-time process embodied in the Möbius strip. There is no finite state or object/event here from her perspective. Instead there is the dynamic transformation—a transformance—of the body in flux in the space-time of Hilbert space, that fractal space of dynamic states. This is a state of quantum interference where all possible histories are inscribed on the body in motion in the text. As a process, the object-event in space-time is the transformance of the trajective subject's embodied knowledge. In fact, Deleuze argues that the transformation of the object is the transformation of the subject as well (Deleuze, 1993, 20)—just as the object becomes an objectile so too the subject is fractured and irremediably (in the best sense of the word) altered. We, as browsers, forge the experiential connections in the text that are laid out for us to find, but we must find them, must actively construct them in our memory. This is a new reading—or browsing—experience that endows us with the agency to build architectural worlds in our minds as we actively assemble the text of our reading. Navigation keeps us physically grounded and activates our proprioceptive sense, but the nomadic navigation of its components, of text and image and other objects, miraculously sets us adrift in spatio-temporal dimensions. This is just one of the many tensions embodied in the hyperlinked form.

Hypertext relies on short-term memory (long term memory being hierarchical, following as it does the model of the codex rather than the database), which makes the recall of the specifics of a hyperlinked work far more difficult after the fact than the process of reading a printed work is. However, what seems self-evident to me (but that is clearly not to the opponents of the form) is that rather than inhibiting our memory as such, in fact what we take away from the reading of a hypertext is a different kind of experience, a different memory of a reading from that of the printed text. Davida Charney has argued that it is hierarchy that is memorable in a text, and that the structure of a text determines its 'seriousness' and influences what we deem worthy of remembering; Sallie Gordon believes that reading information in a hypertextual medium decreases our capacity for retention (qtd in Charney 253), but she fails to make note of other kinds of memories that we might retain of our browsing experience. So many of the opponents of the electronic realm see the only purpose of reading in general as being for the goal of information retention. Their dissatisfaction as a result seems to be an expression of their own frustration with the new medium's irreducibility. No matter how hard a browser tries, she cannot reduce this medium to the three-dimensionality of print—nor should she want to. The informational content has been transcoded and transformed into a new experience. Our memory is structured so that we easily forget things that do not readily fit into an overarching pattern and the new media function on different dimensions than a print-based structural hierarchy does. What we take away from the browsing of an electronic work is not primarily information or plot; what we take away from the textually unfolding event is our embodied transformance and emotional response. It is dynamic subtext and context *as proprioceptive experiences* that are emergent properties of our browsing.

The hyperlinked text as a mnemonic form is an encyclopedic one that is not so much anti-memory and anti-information (as we usually define them) as it is outside of these classifications altogether. Without a hierarchy, we as readers must bodily explore textual space-time in order to decide what is important and, working within a narrative's dynamic flow, we are bound to forget details. However, the real information in the narrative is the performance of the structural experience that our transformance entails. The link makes the memory of our reading and of the text visible through our immersion in the experiential here and now and our conscious forgetfulness of concrete details. Linking is always a subjective movement and a visual (un)folding of our trajective state. It is, therefore, a gesture of hybridization. This manifestation of a host of subjectivities—of hybridity—is the second quality of the quantum, and in physics it is known as interference. Quantum interference is the site of *différance,* the place of the inscription of all possible histories that get written on the body. Unlike the cold-eyed, passive vision of the gaze of patriarchal objectivity, interference as hybridity is a cluster of subjectivities, an "active perceptual system," embracing contradictions and complementarities, "building in translations and specific ways of seeing, that is, ways of life" (Haraway 190). We can use it "to learn how to see faithfully from another's point of view even when the other is our own machine" (Haraway 191). Jackson's hypertextual monster in *Patchwork Girl* can thereby become the machinery of her own text. Her selves are doorways to alternate universes that are dislocated in space and time and where the subject is a threshold into the larger picture of the whole. Her author and mother, Mary Shelley, searches for a unified subject while the monster is always seeing the multiple subject only in parts—blown apart. Ruptured. The monster says "my real skeleton is made of scars: a web that traverses me in three dimensions. What holds me together is what marks my dispersal. I am most myself in the gaps between my parts, though if they sailed away in all directions in a grisly regatta there would be no thing left here in my place" (Jackson, "dispersed"). Woven of contradictions, the tear in the fabric of the space-time of the subject is this dislocation of perspective, and this lack of a centre or origin for the cosmos of the self. This new, multiple, pan-dimensional perspective is the hinge for the door into the new text of the new media. Embodied, material, informational and emergent, it is a "distributed cognitive system" (Hayles, 1999, 290). As a browser moves through her text, her perspective and point of view are constantly in a state of flux as she tries on and discards new positions, all of which are informed by her past public and private histories, background, life experience and previous readings of the text.

The hyperlink is an act, a gesture, a subjectivity, an event situated in space-time. The hyperlink is always already a transformative performance. As Peggy Phalen says, "performance keeps one anchor on the side of the corporeal (the body Real) and one on the side of the psychic Real. Performance boldly and precariously declares that Being is performed (and made temporarily visible) in that suspended in-between" (Phalen 167). Performance for her is a tightrope walk between the two twists of transformative embodiment, just as for Sandy Stone gender is something that is performed, revealing a second time, a transformative interface between embodiment and its enactment that opens a gap for subversion, redefinition and revisionings of the relationship between them. This concept of the gap in articulations of gender and its performance is one taken up by many feminist theorists. For Haraway too we must struggle across the dividing line between the illicit couplings of bodies and machines. For de Lotbinière-Harwood, hysterical speaking is body/memory and an act of performance. Any critical translations are to her mind a performative interpretation, a transformance, of the unspeakable movements in the texts they 'speak' with and against. Akin to McLuhan's belief in the information age as a discursive revolution, Sandy Stone too sees the cyberspatial citizen as a physical, cultural body yoked with a virtual, discursive body (40). Michael Joyce talks about co-creative presences and collaborative gestures in the acting of reading-reading and writing-writing the text in his book *Of Two Minds*. For performance theorist Sue-Ellen Case, the body is the performer's interface with the social dimension of social space. Live performance creates a community and connections in social space (Case 151), but the performance of the subject in the spaces of the hyperlinked text causes a cascade of spiraling subjectivities as a social network that we generate and inhabit by and for ourselves. The body is thereby highlighted once again as the sensory interface for our intimate conversations with public and private space in the new media.

For Bergson, the connection between the senses, the body and perception are fraught. Perception is the meeting of presence and recognition in space and time; however, perception, he argues, cannot be separated from its mnemonic dimension, which situates experience—like simulation—as a kind of representation. For Bergson, this seems to be a form of representation that elides the full-bodied sensory interface. We weigh our perceptions with our past experiences and derive our conclusions from the similarities or differences we find there. Memory too under Bergson has a bi-part structure, which Connerton supplements with the aforementioned third category of performative embodied memory in favour of Bergson's model of embodied perception. Memory includes both remembered action, which is not representational, and associative recollection, a representation of past experience. This reduces the body to only one small component in the universe of our perception. Similarly, knowledge for Bergson is a Möbius strip with embodied or sensory knowledge speaking our relative, interior awarenesses and our exterior ones being spoken by absolute knowledge. These two, of course, cannot be separated, only acknowledged separately. Merleau-Ponty also talks about embodied knowledge (Merleau-Ponty 174), for, the body to him is a "present-tense medium of communication with time and space" (Merleau-Ponty 181) or what we would call an interface. In his eyes, the body is "not a collection of particles, each one remaining in itself, nor yet a network of processes defined once and for all" but instead our sensory perception and intelligence are emergent properties of the whole system (Merleau-Ponty 197)—that is to say, the body is its own web of perception, both relative and absolute. The body is the dimensions of its own unfoldings, and a fluid emergent system inhabiting the experiential realm (Merleau-Ponty 198). Bergson talks about memory as an emergent property similar to the mind from the brain (qtd in Merleau-Ponty 412-413) where "traces of past are only present" (Merleau-Ponty 413). For Merleau-Ponty, the body unites the images or representations of our memories—engrams—with text and the voice of language itself or, in other words, the body unites the senses with knowledge, knowledge being of course embodied (Merleau-Ponty 174). Ezra Pound and John Cage would have called this 'understanding,' this emergent cognitive awareness that surpasses the individual components of data, information and knowledge.[72] Since, however, language leaves traces in the body according to Merleau-Ponty (174), both Merleau-Ponty and N. Katherine Hayles see the combined understanding as embodied knowledge. Engrams, the storage units of memory, are "traces left by stimuli on protoplasm of [an] animal or plant" (Merleau-Ponty 195) or a "memory trace of a perceptual event" (Fox n.p.). Not to be confused with Ron Hubbard's engrams, which are imprinted through auto-suggestion when a subject is unconsciousness, engrams traditionally have been deemed a mnemonic snapshot of something that was actively perceived (Fox n.p.): an embodied knowledge.

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[72] Thanks to Michael O'Driscoll for this observation.

I have already mentioned Sandy Stone's discursive body that is a social body; knowledgeable and legible, it is inscribed by the codes of the culture it inhabits (41) and embodies. For Merleau-Ponty and N. Katherine Hayles, the body is an interface of communication with the here and now (181). According to Hayles in "The Materiality of Informatics" there are five ways knowledge is embodied: 1. it is situated, for the present moment is contextual and dependent on our knowledge of the past: "We experience our present world in a context which is causally connected with past events and objects, and hence with reference to events and objects which we are not experiencing when we are experiencing the present" (Connerton 2); 2. because it is imprinted in the body, embodied knowledge is resistant to change; 3. it is so ingrained that it operates beyond the conscious level as a habitual state; 4. it operates as a discourse network defining what is consciously speakable and thinkable; 5. changes in incorporating practices are linked to new technologies and how we navigate with our bodies in time and space; they, therefore, affect how and what stories we tell (1993, 162-163). According to Hayles, the body is the mediator between technology and discourse (163). It does this by birthing new "experiential frameworks" that are "boundary markers for the creation of corresponding discursive systems" (1993,163). These transformances of the body are all about emergence, social networks, agencies, hybridities and complexity as ordering principles. Entropy is transformed through our hybridized interactions with data and information in space-time into complexity or, more precisely, "information theory explains organized complexity in terms of the reduction of entropy (disorder) that is achieved when systems absorb energy from external sources and convey it to pattern or structure" (Slayton n.p.) From there, we can identify other patterns that are emergent properties in the system of the text. Just as "[i]nteraction, immediacy and agencies are emergent properties of the network" or the networked text (Slayton n.p.), so the text is a process that demonstrates emergence: a nomadology or an intra-dimensional space that privileges trajective motion, subjectivities, multiplicities, hybridities, complexities and embodied knowledge, as will be discussed in Chapter 4. It should come as no surprise then that I will posit (after Merleau-Ponty) that the body is not an independent satellite, but that it exists as "an element in the system of the subject" (Merleau-Ponty 106).

Systems theory says that the part cannot be separated from the whole, so therefore when the body is the interface, the text is body and the body is the text even as it is the vehicle that we navigate with. Navigation is by definition embodied. If the body is a part of the system and knowledge is embodied then we are the body of knowledge that we are exploring in the text. Subjective experience or, more accurately, subjectivity itself is what we are investigating. Since agency is created through storytelling and story is movement, narrative too is an emergent property of the system of the subject. This also means the converse: there can be no subjectivity without the body. The body is system and subject, *object and vehicle for producing movement. The body is therefore not only agency itself,* but movement is too with the body situated in oriented space (Merleau-Ponty 101), and embodying subjectivities just as the object-as-event does. To Merleau-Ponty, movement is also a relationship between our bodies and objects that is enacted by *chora* (as will be discussed in the next section), not as an object but as "the condition of the existence of objects" (Grosz, 1995, 51). Since our body, as a component in the system of the subject, is the mode or modality of subjective space it is temporalized in the present moment of subjective space as our point of view on time and spatialized as duration, the abstract space of universal time (Merleau-Ponty 71). If subjectivity is a system that the body is a part of, then the body is a system that Möbiusly assumes the subjectivity of perspective and the agency of action. Systems are by definition active and a static body is by definition inanimate and incapable of subjective engagement or agency. "Different media produce different readers, different reading environments and different reading practices," Rita Raley observes (2). These are the poetics of the interface. The interface as a writing surface and a writing instrument generates agency and/or writes itself in the system. Subjectivities are irreducible and emerge from complementarity, the experiential contradictions and/or inclusions of our navigations in space-time. The subject is a social network that arises in the act of looking as we speedily move and browse through embodied textual spaces. For Bergson too the body was both a center and a means of movement for all kinds of information (qtd in Merleau-Ponty 460). Performance is something that I keep returning to again and again, for the concept of the text as animate object is as important as the concept of the body navigating the complexities of space and time in new media artworks. In fact, Marcos Novak argues for objects in cyberspace as animate objects and for the space itself—perhaps as a manifestation of *Ma*—as an animate entity in its own right (240). As an environment where "all objects have a degree of self-determination" (Novak 240), the very walls can seem to have minds of their own; in virtuality, any object can mask a real person or intelligent software agent lurking, and the (virtual) air in-between is charged with the dynamic potential of transformation.

iii. Hierophanies and Choric Space

"By obeying the improvisations born of emotions, by abandoning myself to digressions and variations, I found an indigenous structure, a form born of organic growth, like crystal formations." – Anaïs Nin

"The empires of the future are empires of the mind."
—Winston Churchill

In 1989, the year that virtual reality was born, *MacUser* magazine published an article that proclaimed that:

> the ultimate goal of computer technology is to make the computer disappear, that the technology should be so transparent, so invisible to the user, that for practical purposes the computer does not exist. In its perfect form, the computer and its application stand outside data content so that the user may be completely absorbed in the subject matter (qtd in Ulmer, 1997, n.p.)

The rhetoric surrounding virtual environments, on the other hand, argues not for the disappearance of technology, but for a disappearance of the body in favour of existence as a state of pure information. Katherine Hayles has pointed out that the body is both "informational and material object" (1996, 6) and that it is only "when one duality is chosen over another—when the body is seen only as information—that its erasure seems possible" (1996, 6). This elision of the body nullifies the spiritual component of ourselves and precludes any notions of psychological transcendence that should be possible in physical experiences. Disembodied engagement with the virtual denies both consciousness and the sensory input that is integral to our navigation of the world: that being the proprioceptive sense, our physical sense of our body boundaries.

Marshall McLuhan called media 'the extensions of man.' What he foresaw as a *discursive* revolution is difficult to articulate because it is rooted in the language of the senses; it is what McLuhan saw as a kind of Möbius inversion of all our senses simultaneously (McLuhan, 1964, 83). He saw the sensory realm as informing all of our interactions with the world and with language itself, and it is language that mediates our proprioceptive awareness of the world. Computers, he said, are extra-linguistic and "point … the way to an extension of the process of consciousness itself, on a world scale, and without any verbalization whatever. Such a state of collective awareness may have been the preverbal condition of men" (McLuhan 83). And of women. And just as the body gets erased in discussions of technology, so do technological interfaces by users. These interfaces are, in essence, doors through which we enter to experience the "alternate universe(s) … our subjectivities can inhabit" (Hayles, 1996, 1). New media environments overcome their own frames because it is an immersive medium and, since cyberspace exists as both a literal and metaphorical realm, it affects us on a sensory level as an extension of the body. The mythopoetic nature of technology is most often touted as a means of achieving transcendence through disembodiment, that is to say through some sort of uploading of the consciousness into an electronic or silicon-based form. This yearning for a state of 'becoming information' is, according to Hayles, a quest for immortality that has more to do with science fiction than with science since information "must *always* be instantiated in a medium" (original emphasis, 1999, 13). Hayles, Margaret Morse and Diana Gromala have argued that inhabiting virtual space is more truly a form of re-embodiment, a way of engendering a new awareness of our proprioceptive sense of the world. For new media authors, the conjoining of mediums offers a new opportunity for creating an embodied feminist literature that works with proprioceptive destabilization to map and to relocate ourselves in the discursive and material worlds.

In the last chapter I discussed electronic texts as immersive environments and as sacred or threshold spaces where social and personal transformations occur. Through harnessing short-term memory as a place we inhabit, this imaginational space uses its virtual nature to enact a meeting of body and mind, or what Elizabeth Grosz (after Plato) calls "dwelling: between the intelligible and the sensible" (Grosz, 1995, 49). The intelligible is comprised of ideas or shapes, privileging that which can be articulated. The sensible is sensory, in a state of flux or transition, and difficult to speak about. Grosz argues that there must be a third state, a connector or mediation, a transit between these two states, and that passage, she says, is *chora* (Grosz, 1995, 49). *Chora* is an interface or threshold between spaces or states that exists outside of language and outside of the conscious sensory realm. Like cyberspace, memory and information, *chora* "has no attributes of its own," but draws from both language and the senses (Grosz, 1995, 49): it is "invisible and formless, all-embracing, possessed in a most puzzling way, of intelligibility, yet very hard to grasp" (Plato qtd in Grosz, 1995, 49). Choric space is both receptacle and object and is simultaneously neither receptacle nor object since it is perennially in flux; it exists in a state of "pure permeability," being "infinitely transformable, inherently open to the specificities of whatever concrete brings it into existence" (Grosz, 1995, 49-50). What brings it into existence in the archival text is the act of navigation where *chora* functions not as a Platonic womb-like receptacle, but as the fold[73]—or perhaps more exactly as an unfold—that is the site of mnemonic storage: "the locus of nurturance in the transition for the emergence of matter" (Grosz, 1995, 50) with the 'matter' in this case being the narrative that unfolds from the browser's movement through the text. *Chora* is the unknowable space-time of a repressed memory.

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[73] What Grosz calls "a crease" or "an abyss" (1995, 51).

It is an inaccessible dimple that we can only ever circle around, like a tongue on a sore tooth, or like the mind's repetitive gesture as it repeatedly returns to a memory in a traumatic moment in an attempt to heal. Grosz says:

> *Chora* then is the space in which place is made possible, the chasm for the passage of spaceless Forms into a spatialized reality, a dimensionless tunnel opening itself to spatialization, obliterating itself to make others possible and actual. It is the space that engenders without possessing, that nurtures without requirements of its own, that receives without giving, and that gives without receiving, a space that evades all characterization including the desiring logic of identity, of hierarchy of being, the regulation of order (Grosz, 1995, 51)

As a sacred or nurturing place in space (more connected and interconnected than de Certeau's networked spaces in time because it both incorporates and transcends the physical), *chora* cannot leave a trace of its own, but instead can only be the space-time interface between. This is not, however, a feminine space so much as, by its erasure of the possibilities of binary oppositions, a space in which "a transcendence *of* the feminine" is possible (as Doreen Massey says in a different context; 258). By rethinking electronic textual architecture as a form of *chora,* therefore, we can begin to see the new narrative forms as transformative architectures that elide the earlier binaries inherent in the division between genders and gender roles, between the intelligible and the sensible, and between space and time as two states that have traditionally been cast in opposition. This is integral to the feminist project of interrogating spatial dimensions in the present moment for transgressive ends.

Like Deleuze and Guattari's flows and Grosz's Möbius strip, the action of interfacing makes *chora* a bridge between emotional and sensory intelligences and the intellect, awakening us to embodied presence in the form—or bringing the heightened consciousness of *chora* into normal space. This is what Margaret Wertheim calls a "hierophany," "an irruption of the sacred" into normal space (Wertheim 256). This sacred or sensuous connection, this hybridity, of the new media troubles the proprioceptive boundaries of this newest form of literature. Hybridity is designed to undermine the monolithic subject of the Western tradition and this is a blurred boundary state that Hayles re-envisions as the posthuman, that of "embodiment as the instantiation of thought/information" (1999, 5). The further splintering of the posthuman in space, place and the present moment births the fractal subject who is embodied through her navigation within the immersive environment of the electronic text; her browsing produces texts that dislodge her from her usual state of sensory numbness with the collision and interaction of different forms of media that transpire at light speed, and births a new language with which to gesture towards the increasingly visual forms of contemporary culture.

De Certeau saw this kind of navigation in city spaces as an echo or trace that supplements the real—and its map—with a virtual dimension, with a shadow. Like a Derridean trace, the memory of the journey is foregrounded, becoming a stopgap or placeholder for the journey itself: "The trace left behind is substituted for the practice" (de Certeau 97). What is memory if not such an intangible trace in virtual space? However, in the electronic space of the hyperlinked text—as a form that takes no trace and enfolds its own forgetting of its journey within itself—this trace becomes a mode of thought and a language primed for seizing agency and speaking a new feminist trajectivity. The essence of the new media is that it does what we previously were only able to do in the cognitive space of our minds. We cannot speak about it, for the function of the virtual—the link in particular—is dynamic and therefore literally 'unspeakable.' We become the bearers of the trace of our own passing in its space. Through the browser's act of choosing what an electronic narrative is and will become, the text becomes "embodied" by what are otherwise invisible choices in reading (Joyce, 1995, 235). Blending dynamic text with real time navigation in space opens the possibilities for new multi-dimensional and sensory ways of speaking. Interactivity is not, however, the same thing as agency. Janet Murray argues that agency is born, not of interactivity as such, but through the act of spatial navigation within a text or an environment (Murray 128-129). In interactive environments, we construct the text as we read with our choices forming the contours of the space of our reading. A form of browsing that embodies agency as a native mode is essential, as I keep reiterating, to exploring feminist issues in women's writing.

It is these principles that artists like Jackson, Coverley and Slattery are realizing in their works. They are exploring possibilities for re-embodiment, sensuality and the creation of a safe mnemonic space for the practice of healing in these transformative environments where sacred space joins bodily sensations with navigation in real time. These three authors use virtual space as a feminine language, incorporating space (including mnemonic space), time and movement into their interfaces simultaneously. In their works, hybridity and polyvocality are key. They demand a browser inhabit alternate identities, speak in many voices, and make the recollection-like jumps required by associational logic. There is no hierarchy in their virtual works, no authority because they speak the language of sensation as a primary voice through privileging the subjectivity of the browser. Jackson's monster is literally a fractured subject sutured together in time and space. Coverley's text is not only divided between three narrators, but its many characters belong to three different groupings as well. Players have bit parts; they are those who are involved with those at the center of the narratives or who are present at key moments in time. Keepers stand in the wings, conceal important details and gamble on winners and losers. Seekers are those who actively go out prospecting—for gold, property, panning the dangerous rivers of love. We can then Möbiusly invert these subcategories and apply them back on the three narrators as well. By these definitions, Calvin is a player, Augusta a seeker, and Kaye a keeper (Luesebrink n.p.). Slattery's futuristic world is also divided, in this case into five kinds of subject positions as well: Bods, Swashes, Chromes and Glides, plus the immortal Lifers. Each of these categories has four states of being that a subject can inhabit: island-mind, gut-mind, sea-mind and lily- or Glide-mind. Two of those minds are of particular interest to us here: the body-driven mind is the gut-mind controlling the fight or flight response, a purely physical and instinctive state, while the dream-mind and memory and forgetting are powered by the sea-mind, a choric state. Where all of these texts focus their attention is on bringing together these disparate elements not to unify them, but to juxtapose them in order to make transcendence of the individual pieces possible. According to quantum theory, finite bits, the particles, are random while the pattern, in waves, is contained in the whole. Physicist David Bohm says:

> Parts are seen to be in immediate connection, in which their dynamical relationships depend, in an irreducible way, on the state of the whole system (and, indeed, on that of broader systems in which they are contained, extending ultimately and in principle to the entire universe). Thus, one is led to a new notion of *unbroken wholeness* which denies the classical idea of analyzability of the world into separately and independently existent parts… (original emphasis, qtd in Zukav 297).

Story—as a byproduct of quantum interference and as an originary form of 'unbroken wholeness'—thereby becomes an emergent property of all of the individual quanta making up the immersive environment.

This is the non-verbal site of repressed memory. This is what Julia Kristeva found in the Derridean "virgin place," where *chora* "is absolutely blank, everything that is printed on it is automatically effaced. It remains foreign to the imprint it receives... Everything inscribed in it erases itself immediately, while remaining in it. It is thus an impossible surface—it is not even a surface, because it has no depth" (Derrida qtd in Ulmer, 1994, 65). *Chora* as an immersive space writes itself on our bodies. Along with its virtual nature, it naturally presents the illusion of an ever-present surface; it is "an optical illusion. What is shown is not there. It is hidden. It is the source. It does not matter if what is seen is text or image. What can be read depends on a textual route of addressing" (Beiguelman, "Textual Condition"). This route of addressing is activated by our mouse click, directing us to the particular coordinates on the data surface we seek. Bolter and Grusin say that this focus on surface is not strictly the purview of the electronic text either:

> What characterizes modern art is an insistence that the view keep coming back to the surface or, in extreme cases, an attempt to hold the viewer at the surface indefinitely. In the logic of hypermediacy, the artist (or multimedia programmer or web designer) strives to make the viewer acknowledge the medium as a medium to delight in that acknowledgement. She does that by multiplying spaces—relationships that may range from simple juxtaposition to complete absorption (Bolter and Grusin 41-42).

Of course, by making us aware of the surface and the "surface energy,"[74] the depth of the other layers is made all the more apparent, even if they are inaccessible except through the surfaces. In short, surface has acquired a depth as it has undergone this transformation into interface.

Immersive environments, like sacred caves, theatres, virtual reality simulations and electronic texts, require us to insert ourselves bodily into a virtual surface, which, thereby, becomes a space that we occupy. As we wade into the immersive space, the dream or the fiction becomes reality. Like William Gibson's Case, a cyberspatial surfer in the novel *Neuromancer* who physically jacks into the network, we too must immerse ourselves and lose ourselves in the dreamspace of the virtual text like an insect in paint. Lev Manovich argues that new media art exists across two planes, occupying simultaneously an information dimension and an experiential or aesthetic dimension (Manovich 66). This journey inward into an imaginational and psychic space is symbolized by the space of the text, just as in a sacred cave. In fact, the descent into the electronic work of art is rather like a shamanic initiation,[75] The browser immerses herself in the environment and the act of immersion engenders a transcendence of normal space and time. An immersive environment acts as an interface, blending these elements together and commingling the temporal and spatial dimensions as it transports the browser to a different level of consciousness. It could be argued, of course, that this is the function of art period. What is different in sacred and electronic spaces from other art forms is the way that the story in these spaces engages our short-term memory, drawing us into the hierophanic space of the fiction as if it were life. The electronic text, like the sacred cave, is a portal to another world. It opens the inward eye to the spiritual center, to formative and archetypal experiences: to essential myths. *Solvitar ambulando*, St Augustine said. The solution is in walking, and so we must traverse the spaces of our own subjectivities, of the text's architectural interiors, and of the sacred cave of our memory. This is the seat of memory and forgetting. Anamnesis happens in the environment where a browser recovers elemental feelings as she reunites her experience with that of the collective. Robert E. Ryan says that the mind-altering rituals of shamanic practice foster "anamnesis, an 'unforgetting' of mental faculties deep within the unconscious" (R. Ryan 67). Integrating the metaphors of the unconscious with our waking life reintegrates the powers of symbolism and visual language with reason—rather like the effects of Glide and the *Collabyrinth* in bridging the four minds. Amnesia happens as we forget ourselves in the immersive environment and begin to see and/or remember Robert Ryan's bigger picture, the choric continuities of human ritual across time, space and race.

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[74] As I have noted in an earlier chapter, Mark Taylor and Esa Saarinen in their book *Imagologies* also discuss surfaces and depths in the new media. They say that what they call "surface energy is everything in the new media" ("Media Philosophy" 9); although they do not directly refer to them, their surface energy evokes the Japanese concept of *ma*, energized space, and quantum intervallic space. I will discuss these things in conjunction with the notion of speed in the next chapter.

[75] I will discuss the ecstatic component of shamanic initiation—for the shaman's role is rooted in ecstasy—in the next chapter, in the section called Wanderlust.

Because *chora* is analogous only to vocal or kinetic rhythms, it is also rememory and a fluid representation of the subconscious self and the body. Jackson, Coverley and Slattery link the changing depths of subjecthood and body to language through the transformance of the browser, and make these fluid boundaries between states real. These virtualities impress themselves on us in our subjective experience of their art. So much of our experience of aesthetic works in new media spaces is informed by the overload of data glut that we have entered what Paul Virilio calls an age of 'directionlessness' (2000, 85). As our society and world have become increasingly urban as a byproduct of the Information Age, we have become more and more immersed in the dataspace that separates us from other human beings. In the early 1960s, as the civil rights riots in black ghettos were well underway, the mayor of Philadelphia announced: "'From here on in, the frontiers of the State pass to the interior of the cities'" (qtd in Virilio, 1991b, 9). At this time, major international airports were also being built with their own surveillance architectures that were fortified "system[s] of interior/exterior traffic control" (1991b, 10). According to Virilio, these are just some small indicators of the changing nature of society in the Information Age and a measure of how the city—rather than the gateway or the seaport—has become the entry point to countries. In *The Lost Dimension*, Paul Virilio says: "From the palisade to the screen, by way of stone ramparts, the boundary-surface has recorded innumerable perceptible and imperceptible transformations, of which the latest is probably that of the interface" (Virilio, 1991b, 12). What we are seeing is the concreteness of the architectural framework of the city transformed, like the girders of the virtual skeleton of the electronic text, to transparency and abstraction. The transparency of the computer screen with its interface has become a writing surface with depths of its own that we can insert ourselves into as we navigate virtual space. Virilio argues that this is a new kind of representation into which perspective and landscape disappear (1991b, 12): "In this situation, a difference of position blurs into fusion and confusion ... From here on, people can't be separated by physical obstacles or by temporal distances. With the interfacing of computer terminals and video monitors, distinctions of here and there no longer mean anything" (Virilio, 1991b, 12-13). Physicist David Bohm says the same thing about quantum mechanics, that it is "based upon a perception of a new order" (qtd in Zukav 305) that was not part of our cognitive science before. It is no accident that Gertrude Stein's explanation for why she left her birthplace of Oakland, California—"There's no there there"—has been used by William Gibson as what has become a rallying cry and one of the most quoted descriptions of cyberspace. In an increasingly virtual and data-based world, all boundaries become permeable membranes, walls that can be breached, and entryways as points of (potential) data access. Boundaries have become informational rather than literal.

Maria Luisa Palumbo believes that the new interior or 'postorganic' architectures signal the reversal of traditional perspective and mark an introduction of jagged boundaries—"deformable geography"—arising from the increased mergings of organic bodies and mechanical machines in our time (5). Jaggedness, an idea drawn from chaos theory, is used to describe all manner of irregular geometric shapes from cloud formations to coastlines, including "everything that escapes order, measurement, the gaze and the representation of the territory" (Palumbo 33). Palumbo argues that these ideas have risen up to explain and measure urban sprawl, and to reflect the integration of quantum theory, particularly complexity, into architectural forms. More and more the new architectural shapes attempt to incorporate the unfoldings of urban space, the "jagged line that fills all the gaps, all the possible spaces *between* objects" (Palumbo 43). This is where electronic space as an architecture comes to the fore; whether material or informational, it is a system that privileges relations between rather than precise boundaries, and where connection and interactivity are privileged over barriers and rigid forms (Palumbo 31). This is visceral architecture that is "a *threshold* rather than a barrier, [as] both bodies and landscapes in extreme situations highlight the complex play of forces in space as a political frontier rather than one of form" (Palumbo 31). And the boundaries do not stop between buildings and party lines, but extend inside and outside of the body as well. This new jagged architecture mingles the dividers between the interior of the body and its exterior environment (Palumbo 61). Similarly, Henri Bergson also saw the body with its privileged role in memory acting as a point fixed in time, acting as "a conductor" between objects and ourselves and the past and the future (78).

Immersive environments, like the painted cave, the sweat lodge, the medieval cathedral, Star Trek's holodeck and virtual reality simulations, have just such permeable boundaries. They are by definition "psychological thresholds" (Hovagimyan n.p.)

bridging different states of being. As abstract spaces, they are sites of transformation and transcendence where, through inhabiting short-term memory, the subject returns altered by the symbolic experience. This type of "shift in consciousness" is generally the realm of religious ritual, but it is also the realm of art (Hovagimyan n.p.). The power of immersive spaces in modern experience—be they contained within architecture, cinema, fiction or virtual reality—persists in their symbolic power as sites of or catalysts for transformative experiences. Immersion is a boundary state and the liminal is irreducible to object and subject: it alters consciousness by its very nature. Immersion is a process, an *experience* of an art form, that is closer to life than to other forms of engagement with art. Immersion's abstract nature is difficult to articulate because of its experiential dimension, but virtuality does embody its own poetics. In such spaces, according to Margaret Morse: "a spectator … enters a charged space-in-between, taking on an itinerary, a role in a set in which images move through different ontological levels with each shift in dimension, in a kinaesthetic art, a body art, an image art that is rather an embodied conceptual art" (Morse 167). This experience falls within the abstract realm of the unspeakable, that is to say it exists outside of language. While Scott Bukatman argues that virtual reality eliminates language, Margaret Morse says that entering a virtual environment is "as if one were immersed in language itself or as if the symbols on a map were virtually embodied as landscape" (Morse 181). We see this clearly in Slattery's *Collabyrinth* where we must immerse our bodies and minds in the creative and poetic space of the shapes and meanings of the glyphs in order to play.

In the oldest of immersive environments, sacred caves, ideas also assume a symbolic form, becoming doorways into imaginational space and embodied knowledge, and exits into the dreamscapes of possible worlds. The path that the shaman takes is a return to the origins of her personal and tribal mythologies. "[T]he cave" like the electronic text, "is often an awesome structure naturally symbolic of the penetration of that level of consciousness" (R. Ryan 39). By "leading the mind from the everyday light world of external experience to the maternal core, the cave journey fosters an inward relocation of the focal point of reality. It opens the inward or strong eye to the formative sources of human experience" (R. Ryan 39) and to imaginational space or the creative state of mind. The entry into the sacred cave has traditionally been a symbolic experience in its own right. An initiate often had to endure hardship—cross chasms or walk along dangerous ledges—before entering a birth canal of sorts, generally represented by a long narrow passage that must be crawled through. Fasting or psychotropic drugs were methods used for inducing an altered state of consciousness. The cave walls themselves would be adorned with images of symbolic significance that would facilitate such a vision quest or encounter with the sacred. The sacred—choric space—is thereby actually made present in normal space and time.

The disorienting intersection of text and image in contemporary culture is a new language and, while this does not induce an altered state of consciousness, these collisions do require us to use both sides of the brain. In electronic spaces, however, the virtual is real and the real virtual, just as in the sacred cave. Our imaginational becomes our reality. In these rooms, we occupy a threshold or liminal state that makes the creative act of immersing ourselves in imaginational and mnemonic space-time possible. In fact, the virtual spaces of these kinds of environments function as languages in their own right or, more correctly, as discourses of sensation. This is synaesthesia made flesh in the realm of the semiotic *chora*. Sensation and the body are central. Describing the embodied experience of virtual reality, novelist Nicole Brossard says:

> it's as if the body reorganized one's thoughts so they overlap in a natural way. The body becomes pure sensation, with close-ups of well-being coming by like schools of magical fish. No point thinking about the abyss. It simply enters us, a sum of emotions impossible to enumerate. What's important is the depth. Descending (1997, 163).

Using our bodies to reorganize our thoughts as browsers, we can mingle our interiors and exteriors, and reinsert our proprioceptive sense and our material awareness of the world back into the trajectories of our voyages through electronic texts. Nomadism in the fluid, immersive, interactive, interdisciplinary forms of the new media offers nonlinear possibilities for erasing binary-based, authoritarian constructs. We need to be aware of "the psychological (re)mapping of our bodies" (qtd in Hayles, 1996, 22) that new technologies are enacting on us and we need to use these new sensations to understand ourselves, our bodies and our art. Catherine Richards, an artist who uses virtual reality simulations in her works, sees her role as one of "inventing new images for the body" and articulating the "net of interconnections" inherent in female subjectivity (Richards 258). This highlights the feeling of being plugged in. And since "subjunctive identities are grounded in narrational journeys" (Morse 201), those journeys where we create our own maps are the most memorable. As browsers we plug ourselves back into the otherwise unmapped territories of the unspeakable that these artists are exploring by using the same narrational and navigational tools they do. They act as shamans who guide browsers/initiates through the spaces of their world. We must step into their embodied points of view to explore their immersive architectures. We can thereby assume their *potentia* or quantum probability, becoming what Heisenberg called "something standing in the middle between the idea of an event and the actual event, a strange kind of physical reality just in the middle between possibility and reality" (qtd in Zukav 66). This is the embodied present moment.

The only space in time that Jackson's monster can inhabit is the present moment. As a creature stitched together of other people's pasts, she has no birthright, and no future of her own. And, yet, in many ways she is irremediably interwoven with the fabric of time itself, composed of its pulsing instants as her life ticks backwards—full circle—into the grave where her life began. She says, "One could say that I existed already, before my members severed past alliances. It is merely a matter of redrawing an outline. Snaking through the space between two lives to wrap a line around some third figure" ("already"). As that third figure or wheel, she is always redrawn as the outsider in the equation, always an interloper in the narratives of her body's other lives. Squatting in abandoned moments, she occupies time like we might occupy space—or an army a country. Despite all that, or because of it, she entirely inhabits the present moment with the intensity of an interactor in an immersive environment, and she is always fully alive to herself, her body parts and her situation in the here and now.

The problem remains in finding a way to speak about the immediacy of embodied knowledge, that meeting of the body and experience. The artists of the Baroque period used multimedia—combining painting, sculpture (in numerous textures and multicoloured materials), theatrical staging and lighting, and architecture in new spatial configurations—to create immersive environments. In the Baroque there was only a single idealized perspective, as opposed to the fractal perspectives of the new media, but these were nonetheless spaces that a viewer had to enter into. As a playwright, sculptor and both the architect of the entrance to St Peter's Cathedral and the creator of its celebrated Piazza, Gianlorenzo Bernini was no stranger to the concept of the dramatic use of structural space. It is not surprising therefore that his *Ecstasy of St Theresa* is the single most celebrated example of the Italian Baroque. In fact, it was Bernini's innovation that first dynamically connected sculpture and architecture ("Bernini, Giovanni Lorenzo," *Encyclopedia.com*, n.p.). Always in a state of dynamic transformation or a process of transcendence, "[h]is figures are caught in a transient moment from a single viewpoint, bursting into the spectator's space" ("Gianlorenzo Bernini, *Artchive*"). Overcome with rapture, St Theresa is arrested at the moment of spiritual ecstasy as a heavenly messenger, a cherub, pierces her with an arrow. While the sensuality of the St Theresa experience cannot be denied, the viewer is invited to step into the opulent space, lush with textures and fabrics, different coloured marbles, bronze emanations from above and dramatic lighting within the theatrical viewing area where our gaze and our body are directed to a single point for the optimum voyeuristic effect. In more contemporary immersive environments, like Happenings, installations and the electronic text, we are invited bodily into the space of the work of art, but there is no such single focal point or ideal perspective. Instead a multiplicity of viewpoints is encouraged as interactivity becomes the reason for the artwork's existence. In these spaces, multiple narrators and voices perform quantum interference: the act of writing all possible histories on the body of the interactor. Surely Slattery's *Collabyrinth* is the pinnacle of this achievement to date where the interactor inserts her body and voice to become both author and Dancer of her own linguistic experience in time and space. We can inhabit her GUI 'bodily' because it privileges our short term memory, the place that we occupy in activities in the present moment. And that is a time that is by definition embodied.

Margaret Morse has written at length on the embodied, experiential effects of video installation and virtual reality, which she calls "the most complex art form in contemporary culture" (Morse 157). The fact that these experiences are interactive events makes it particularly difficult to document the essence of immersive forms. Morse says: "While an installation can be diagrammed, photographed, videotaped, or described in language, its crucial element is ultimately missing from any such two-dimensional construction, that is, 'the space-in-between,' or the actual construction of a passage for bodies or figures in space and time" (157). As I have previously mentioned, the journey through a perpetually unfolding immersive environment is like a shamanic initation. With the shaman as an interface and mediator between the human mind with its archetypal imagery and the transpersonal beyond it, the text like the cave acts as a magnifier for the transformative journey. It is a perpetually unfolding space that is an extension of the browser/shaman body and the envelope of her embodied knowledge. The body itself is of course an immersive environment in its own right and a sacred space that we inhabit. Like other sacred spaces it is a 'field of forces' or *ma,* that is dynamic or intervallic space. Transcendence arises through the altered state of consciousness that is integral to this immersive experience of voyaging in the charged dimensions of imaginational space. As a result, new myths for our new age are being born in the flickering light not of the painted cave's torches, but of the computer monitor.

In order to play in Slattery's *Collabyrinth,* we must immerse ourselves in the surface of the computer screen. We must enter onto an electronic version of the game griddle and play with the glyphs as a dancer-initiate does. Slattery identifies the importance of the connection between game play and memory, recognizing "[o]ubliettes, cul-de-sacs and circumlocution in the service of techno-shamanic mind-theatre" ("Resonance," *Glide* Website) that exist in the text and at the website. Our navigation through the charged mnemonic space is an event-experience that mimics the process of healing from trauma, as Janet Murray maintains. (See Chapter 4 for a further discussion of Murray's argument.) This lost dimension is what Toni Morrison calls rememories; they are the corporeal hauntings of the past in the present. Akin to the transformative process of reintegrating repressed memories, this play in the *Collabyrinth* requires us to bring our own past—and future—to bear on our interpretations of the signs in the embodied present moment. Similarly for Lifers, the sea-mind is the pool in which painful memories collect and keep them alive to the present moment. MyGlide is told by the Glide council:

> "The sea-mind fills with memory and some of those memories are the memories of pain…" "The sea-mind is vast, but the painful moments are like salt accumulating. Given enough time, the other life in the sea-mind starts to die—all else that lives in the heart—love, the desire to create, invention, playfulness, hope. The tides of the sea-mind are the dreams of time, ebbing and flowing, reviewing the past, sending the future out in waves before it, breaking on the island-mind." (Slattery vi. 29-9)

In order to escape the fate of the Lifers whose accumulated pain paradoxically keeps them psychically alive, we are given the opportunity to exercise the creative side of the choric sea-mind and dance in the *Collabyrinth*. We can choose our own Glyphs or allow the oracle to choose them for us, but we must arrange them into a pattern that is meaningful for us. The glyphs themselves are in a constant state of flux. An interactor can alter the size, colour, and stroke width, plus the morph speed as one glyph transforms into another. More importantly, we can either do this alone, enacting our own transformance, or we can perform collectively, making the game a truly interactive experience. Robert Kendall distinguishes between two different kinds of dynamic text that are found in the new media arts that both form "an often-complex relationship between textual meaning and motion" (n.p.). He calls them gestural and structural text. He says, "In gestural animation, the movements of the words serve somewhat the same function as the gestures of body language or the inflections of speech. They provide emphasis, build tension, or evoke a mood (calm, anger, etc.)… In structural animation, the movement constitutes a fundamental part of the textual structure. It affects meaning and syntax at the deepest level" (Kendall). Where the Glide language and *Collabyrinth* are perhaps unique is in their abilities to blend these two types of visual language. Glide is a body language, providing emphasis, tension and mood, but the glyphs also morph and shift, changing colour, shape, size, and embody their own syntax. Their animation—more like life than simple entertainment—draws us in, immersing us in their meaning.

The space of the *Collabyrinth*, like the sacred cave, is imaginational space; it is a venue for accessing the creative source of the mind. These spaces are continual unfoldings that open myriad possibilities before us. Shamanic rituals in sacred spaces have generally been linked with collective memory, and with performing anamnesis, an unforgetting, of a shared unconscious. In the environment of the *Collabyrinth* in particular and the electronic text in general this is clearly not the case. Instead perhaps these supercharged sacred spaces connect us with our formative memories and with our elemental desires by making us more alive to our proprioceptive sense and the currents of mind that carry traces of the past back up to our cognitive surface where we can re-experience them. Myth is experiential, which is why it is a key component of an immersive environment and also why it is so difficult to talk about. It exists outside of the linguistic realm like *Ma, chora* and the quantum. The quantum exists outside of the material realm in a state of relational flux as both dynamic quanta and wave. Myth is doubly divided being both the experience of the event and way of telling of the whole cluster of experiences around its happening. Myth, like the quantum, must be experienced rather than recounted.[76] Being experiential, the new myths at work in the electronic environment draw on age old knowledges of what it is to be human while simultaneously they are remediated by the material context of the technology that fuels them. Our encounters with these new environments thereby draw from our elemental natures while simultaneously incorporating the stuff of our material existence. Our experiences are inclusive, embracing hybridities and contradictions, and being framed 'and, and, and' as opposed to the binary opposition of 'either/or logic' (Douglas 125). Similarly, both process and experience exist outside of space-time on a spiritual plane, but their effects are felt and realized materially in the here and now. This "coherent superposition" is a conglomerate of all possible histories that get inscribed on the body in the experiential dimension (Zukav 270).

The cabala also cast the centrality of sacred space in the form of the body. Each of the ten Sephiroth represent a different human body part, from crown to toes (Aczel 34) and Coverley explores this in *Califia* as a key metaphor. In the text, the narrator most connected to the spiritual plane, Kaye, is concerned with the literal voyaging of the body and the spiritual journey, prophecy, navigation, heavenly bodies, and visual language. The divine plan of the text is enacted through the hypertextual realization of the dynamic flows of spiritual emanation. The text becomes the cosmos within the cabalistic system and the many journeys are paths toward enlightenment. Like the Art of Memory's obsession with the categorization of all human and divine wisdom, *Califia* is rampant with information trails and maps in the ongoing quest for the lost treasure of the fabled Amazon queen. In Kaye's section it is predictably not the impartial documents but the subjective and encrypted fables, the treasure maps, those process maps, which are the most important. The key to solving the mystery of the gold's location is literally in the stars, in an encoded visual language (for which the key has been lost) based on celestial navigation—a topological StarMap superimposed on the terrain.

Where Augusta's great great grandfather Samuel Walker is the father of the quest for the elusive cache of gold, his Chumash wife, Willing Stars, is the mother of tribal secrets and the unofficial categorization and preservation of ancient ways of knowing. She was a medicine woman or shaman, a preserver of sacred ways, to her now extinct people. As the last audible voice of her line and a liminal figure between worlds, traditions and times, she is the keeper of forgotten knowledge:

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[76] Gary Zukav says, "Mythos points toward experience, but it does not replace experience. Mythos is the opposite of intellectualism" (262). This too is how he says we should approach quantum physics, by using the language of myth rather than conventional and linear logic to describe it (262-3).

> Willing Stars apprenticed as a healer, learning the directions of the land, the proper shape of tattoos, the curative herbs and roots, the skill of divining stones, the old stories, how to tie the dead for burial, and the string figures that told the pattern of the stars. ("Stars Fell From the Heavens")

Utilizing her visual code and popular tradition as a form of encryption, Willing Stars as mapmaker is the author of the symbolic language that guards the family secrets. Like Leibniz's notational calculus, it is a representational system. Where official records document only the small detail of the sale of a blue blanket to an Indian woman for $3.00, the family memory and legacy are preserved in the delicate embroiderings she stitches in the blanket. [Fig. 3.1: Blue Blanket]

Her handiwork tells the location of the gold for those who know how to read the old ways. The language of Willing Stars' map has its origins in native astronomy and the myths of the Southwest. Not recognizable as any kind of science, the topological art of reading the stars—particularly as a tool for navigation—was taught to children in the form of string games including the still popular Cat's Cradle [Fig. 3.2: String Games]. Each pattern had an accompanying chant that tells a story, but literacy in this art has been forgotten: "The stars do not correspond with the fingers," Kaye says, "and we have lost the reading of the constellations in the loops of web. For now." (Kaye's Path: Cat's Cradle). It is the Whirling Man or dipper pattern—a cluster of eight stars encompassing the seven stars of the Big Dipper—that guards the treasure's location in Willing Stars' handiwork. Her symbolic language is a perfect blending of image and text, an astronomical World WideWeb, where that which is outside language speaks a topological, mnemonic system, and where her code is not crackable without the encryption key of her people's stories.

I have already discussed how the switch from predominantly oral forms of literacy to predominantly written forms wrought a transformation from mnemonic incorporating practices to inscribing practices, according to Connerton. The new media are shifting this balance and introducing a kind of contextualized and embodied knowledge in real time that is more participatory than print culture can be. Erik Davis quotes anthropologist Stanley Jeyaraja Tambiah who sees "'multiple orderings of reality'" in different kinds of cultures: "different cultural frameworks of knowledge and experience that build, in essence, different kinds of worlds. Tambiah compares and contrasts two basic frameworks found in human culture, one based on *causality* and the other on *participation*" (Davis 174). Causality is linear logic, derived from print culture, and participatory culture is the more holistic approach of oral culture that plugs the human back into the natural world. McLuhan and Ong argue that the new media has introduced a new kind of participatory culture—Ong's secondary orality and McLuhan's new electric culture, "a resonating world akin to the old tribal echo chamber where magic will live again" (qtd in Davis 175)—that is not so much a return to oral culture, as it is a blending of causal and participatory ones. Similarly, Katie King "argue[s] for the inclusion of poetry, song, and story within the genre of feminist theory" (Salvaggio 22). Michel de Certeau also calls the unspeakable nature of narrative the "space for voices" that emerges in the postmodern or participatory text (162). This new emphasis on participation—or interactivity—in new culture is supported by declining television viewing among our young people and an increased interest in cool media forms, like computer games. Once again, like ancient shamans, we are immersing ourselves in environments that blend magic as science (think, for example, of the Disney studio's 'imagineering') and magic as theatre that is 'performed into existence' (Davis 172). What is clear is that the new interaction technologies are reintroducing a kind of *tantra* into our *techne*. *Tanta* is Sanskrit for weaving and *tantra* is traditional buddhist practice where one lives one's beliefs rather than talking about them (Zukav 312). More and more this seems to point towards our mnemonic technologies as archi-traces, spaces of becoming or sites for the inscription of subjectivity.

Memory is a social matrix that enacts a complex dialogic between subjective and collective motives. Paul Connerton sees the temporal dynamics of historical memory as a kind of hybrid network of complementary and contradictory impulses. "Every recollection," he says,

> however personal it may be, even that of events of which we alone were the witnesses, even that of thoughts and sentiments that remain unexpressed, exists in relationship with a whole ensemble of notions which many others possess… What binds together recent memories is not the fact that they are contiguous in time, but rather the fact that they form part of a whole ensemble of thoughts common to a group, to the groups with which we are in relationship at present or have been in some connection in the recent past. (Connerton 36)

Where the museum arose out of the impulse to establish a community of contextual links between art, culture and objects, collective memory is always already by definition culturally situated within a framework of connections and associations (Connerton 37). This yearning for some kind of collective memory, whether real or fictional, whether in museum culture or anthropological studies of sacred cave paintings, is always an archival gesture: "It is to our social spaces—those which we occupy, which we frequently retrace with our steps, where we always have access, which at each moment we are capable of mentally reconstructing—that we must turn our attention, if our memories are to reappear. Our memories are located within the mental and material spaces of the group" (Connerton 37). An individual memory is impossible, Connerton argues, for it always exists within the discourse network that is our culture (Connerton 37), and even social groupings themselves are closed systems being discourse networks. But, to my mind, this does not eliminate the role of memory in the new archival literatures, only underlines how indoctrinated we are into cultural paradigms. Toni Morrison would see this as a kind of haunting where the ghosts in our corporeal machineries are the shared memories of old traumas performed in the present moment.

4. The Knot: Disorientation

i. Intervals: Where Visual Time Meets Virtual Space

"Time is forever dividing itself into innumerable futures…"
– Jorge Luis Borges

"To define the present in isolation is to kill it." – Paul Klee

On November 6th, 2001, a new television program named *24* premiered; it is the first series that seeks to document art as a real time experience. ('Real time' is not to be confused with reality TV, which re/presents continuous events within a set timeframe; 'real time' foregrounds the temporal as a spatialized player and a part of the experience of the event.) That same week was the 50th anniversary of the comic classic *I Love Lucy*, the filmed live television show that invented the concept of the rerun and introduced the flashback to television for the first time (Hartigan 16). Filmed on film, rather than taped to be taped over, Lucille Ball and Desi Arnaz negotiated for ownership of the shows on the assumption that people would want to see the episodes again—an inconceivable concept up until that time. In a mere 50 years, we have moved from live time to real time. Billed as "the most intense hour on television", *24*'s twenty-four first season episodes each span an hour in the course of one single day. Lucy's laughs recorded a half hour in front of a live audience—one take, no second tries—whereas *24*'s reality slows time down, spatializes it, seizing 1440 minutes—minus commercials—of high action drama that play out in fast jump cuts and split screens of intervallic space and visual moments. Rather than having one case per show as is the norm in most televised dramas, *24* introduces the concept of one case per season. It packs each minute full. The significance of this concept of real time should not be underestimated. As was discussed in Chapter 2, Paul Virilio aligns this shift in the temporal with the magnitude of the discovery of real space perspective by Italian artists in the Renaissance. Real time, he argues, will begin to supersede real space, "making both distances and surfaces irrelevant in favor of the time-span, and an extremely short time span at that" (1995, n.p.). This is the domain of the Derridean interval—spatialized time or temporalized space.

This slowing down is also evident in films, including *The Matrix* and *Run Lola Run*, on the web and in new media artwork. As a part of our obsession with information storage, time is our measure of memory and the significance of the present moment: "we have domesticated time by cutting it into smaller and smaller pieces in order to make it as productive as possible. But in doing so, we have not escaped our confinement in the moment. We have actually made the present ever more fleeting" (Barnett 168). In the film *Longitude*, which is about John Harrison's life-long quest to produce a clock capable of keeping time at sea (necessary for determining longitudinal position), time becomes a visible function of machine parts for him. He says, "People say the tick of a clock is like a single sound, but it's hundreds. It's hundreds of tiny frictions, expansions and contractions all twisted into a single moment" (Sturridge, 1996). More recently, atomic clocks, which measure time accurately to a billionth of a second, have made it possible to determine one's latitude, longitude, and even altitude, to within mere meters through the use of the Global Positioning System (GPS), a network of 24 satellites in orbit since 1993 (Taubes and Kleppner). This increasingly fractal sense of time with its shifting perspectives is becoming primarily visual as our awareness of the temporal and the intervals we can measure get further subdivided. The delay of waiting—to dial in, to download, to pause for the arrival of images—is built-in, so that the texts acquire friction as an aesthetics. The new media moves us out of the present tense into a metapresent tense, into what Paul Virilio calls "exposure time" (1997, 136).

Exposure time is a product of telepresence and tele-immersion[77] that has rendered real time fractal and the present tense multidimensional.[78] Virilio argues that the new real time technologies are killing the dimension of the present by separating it from its here and now context (1997, 10). What he calls this crisis of the present moment is altering the way we exist in the temporal dimension. It is problematizing our relationship to real time (the embodied time of presence) and to velocity. Speed is now finite, with all travel being limited by the velocity of light, and this has rendered our measure of the present moment as one of duration. This elongation of the present tense leads Virilio to call for the exposure speed of time-light to recontextualize the present moment (1997, 15) into images of Albert Einstein's relativistic designations of underexposure, exposure and overexposure as a replacement for the past, present and future. Just as the accelerating speed of communication technologies eliminates our sense of gaps in space and time, so the increased speed of global travel erases spatial exteriority (elsewhere) and temporal exteriority (the future) and replaces them with an eternal present moment, a state of futurelessness (1997, 25). Where travel in the nineteenth century guaranteed us a departure, a journey and an arrival even as it began to implement schedules and erase the notion of delay in travel,[79] in the twentieth century broadcast technologies have eroded the need for the journey in space and time and have abolished "departure ..., the journey thereby losing its successive components and being overtaken by *arrival* alone" (1997, 15-16). In the same fashion, Marshall McLuhan argues that the new media have collapsed the whole world into a global village (1964, 138), and Jean Baudrillard believes that the folding of time and space wrought by air travel and the media have resulted in all movement being "concentrated in a fixed point, in an immobility that has ceased to be one of non-movement and have become that of a potential ubiquity, of an absolute mobility, which voids its own space by crossing it ceaselessly and without effort" (1988, 39). As a result of this collapse of the temporal into the spatial, Virilio calls for a new state of being, a state that he calls trajectivity: "Between the subjective and the objective," he says, there should be "the 'trajective,' that being of movement from here to there, from one to the other, without which we will never achieve a profound understanding of the various regimes of perception of the world that have succeeded each other throughout the ages" (1997, 24)—for example, visibility, perspective, orientation, long distance travel and communications, speed, depth of field, etc.

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[77] The two technologies are distinct. Telepresence is a long distance connection that links people in different places at the same time in real time; it is a feature of teleconferencing. Tele-immersion is an interactive experience that gives the participant the semblance of being elsewhere in real time similar to virtual reality simulations.

[78] Lev Manovich in *The Language of New Media* argues that the new cultural interfaces of electronic spaces have split space into many layered surfaces with interactive units "alternating between the dimensions of representation and control" (208). This is a curious flattening of space and elision of time that seems to ignore the realities of the multidimensional and embodied nature of interactivity. While it is generally conceded that postmodernism privileges space over time, this is not through the elimination of time (or through depicting time, as Manovich argues, as "a flat image or landscape" [78]), but through re/presenting the temporal in spatial ways. Time therefore under postmodernism becomes a spatial dimension: a place where we are situated or inhabit a particular subjectivity.

As browsers in the quantum feminist universe, we are not passive agents of the effects of light-time as Virilio would have it, but this awareness of ourselves in motion and our agency in moving in the present moment against a particular trajectory is a kind of friction, an aesthetics of delay (Shields 157). Friction and the measurement of time go hand in hand. In fact, friction has been an impediment to the measure of time from Galileo's invention of the pendulum in 1581 (Barnett 192) until the advent of the atomic clock in the 1950s. While quartz crystals, which resonate at a constant frequency under pressure, helped begin to solve the problem of friction in timekeeping by eliminating moving parts in clockworks altogether, it was not until radiometric dating and carbon-14 testing came to be used that time became truly constant, subject to sub-atomic intervals, and free of the clingings of gravity.

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[79] Slattery plays with this idea in *The Maze Game*. The Mass Transit Algorithm (the MTA) has made the concept, but not the practice of travel obsolete. Instantaneous transit to any other point within the system makes notions of time and space irrelevant: "As long as you could just be any-there *now*, and *now* was a kind of constant, you had no particular need to know where *there* was. *Where* was coordinates the Outmind kept track of. Experientially distance, other than the very local variety, had collapsed. Everything was here and now" (v.1-5).

Prior to the invention of the mechanical clock and the striation of the temporal dimension into visual increments, time was ruled by the sun, the moon, the stars and the weather with each 'day's' twelve parts being defined by the diurnal journey of the solar body through the heavens.[80] More than being light-bound with the fluctuating size of the intervals seasonal, time is and continues to be resolutely earthbound. As Albert Einstein demonstrated, time is relative to the mass and orbit of the planet we inhabit. 'Time' as we know it has no meaning in outer space—or in virtual space either. Not necessarily being ruled by time's arrow, the temporal experience in digital textual spaces is wholly subjective and personal, subject to frequencies, trajectories and intensities. It is relative only to us, not to an external reality. The ruptures, fissures and gaps inherent in the form privilege disorientation, gesture and visual syntax. The time of our journey is a whole and the friction of getting there is a measure of living its passage. Time in the electronic text follows vectors and trajectories since 'forward' and 'backward' have no meaning when space is virtual. This is movement in Riemannian space, what Deleuze and Guattari call 'smooth space' and define as "an amorphous collection of pieces that are juxtaposed but not attached to one another" (485). This is also Japanese *ma*, a dynamic or intervallic space-time that is in a constant state of fluctuation and where the individual pieces are patched together of an infinite conglomeration of the dimensions of multiplicity embodying heterogeneity, connectivity, frequency and accumulation. Smooth space does not know time's arrow, but instead measures progress in ontological and sensory increments—in archi-traces. Smooth space privileges disorientation—not a lack of perspective but all perspectives simultaneously— as a means of movement. In smooth space, the temporal becomes experiential and fractal, continually changing direction[81] or, as the McLuhans argue, time becomes spatialized where as a fourth dimension, as instantaneity, it is the convergence of all times at light speed, as was discussed in Chapter 2 (qtd in McLuhan and McLuhan 47).

There are two kinds of timekeepers—those clocks that measure time and those that measure what has been forgotten, the loss of radioactive decay. The atomic clock, where time is contained in the substance of the earth rather than in any technological apparatus (Barnett 169), is a measure of a substance's "memory" (Barnett 172), determining how much the charge of its atoms has diminished over time. As with the atomic clock, loss is the measure of the journey in virtual space. Memory is the only interval of time in a cybertextual journey. Computers undermine McLuhan's designated constants of the temporal dimension—"sequence, duration and rhythm"—that conventional clocks use, and manipulate them into information space's multiple temporal dimensions (McLuhan & McLuhan 53). Computer time ('perceived time' Eduardo Kac calls it) is a different mode of measure; time in virtuality is unhinged, smooth, becoming affixed to content, motion, vision and perspective rather than to a finite experienced space in time. Sensory time is immediate and exists in suspended animation, inhabiting the immersive spaces of the here and now. Memory is measured by the fluctuating body clock in virtual time, for memory is the body in motion in space, and time is how we got where we are going.

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[80] See Jo Ellen Barnett's *Time's Pendulum* for an in-depth discussion of the history of time telling and James Gleik's *Faster* for an examination of the acceleration of culture.

[81] Other dimensions of the spatial properties of the new media arts will be explored later in the chapter in the context of entanglement.

This is the plane of quantum entanglement where the different systems mingle, where computers mine time and manipulate space, where disorientation extends across both the temporal and spatial realms (Virilio, 1997, 140), and where we occupy the positions of narrator, author, and browser all at the same time. The only control we have is via nomadic logic in what we look at, the ways we move and in the choices we make along the way. Despite the virtual nature of the realm and the mode of engagement with a mouse, this is embodied browsing in the present tense, for, in virtual space, we become 'interactors,' to use Janet Murray's terminology, or latter-day *flâneurs*, to use Charles Baudelaire's. We are connected, but our interactivity is limited by our interface with the technology and by our place in the capitalist economy. Browsers navigate space, look and sample but do not buy into the economy of exchange. The act of looking by an outsider is as ambiguous a re-envisioning of the current 'moment' as Walter Benjamin's androgynous angel of history that frees the future instant buried in the past and uses it as a montage to re-splice it back into the real time experience of the present (Buci-Glucksmann 44).

We also might align entanglement with Michel Foucault's notion of heterotopic space. The inverse of utopias:

> *Heterotopias* are disturbing, probably because they secretly undermine language, because they make it impossible to name this *and* that, because they shatter or tangle common names, because they destroy 'syntax' in advance, and not only the syntax with which we construct sentences but also that less apparent syntax which causes words and things (next to and also opposite one another) to 'hold together'. (1994, xviii)

Like the intervallic spaces of the electronic domain, like montage and like real time, these alternate worlds fracture and entangle time and space simultaneously. Elspeth Probyn argues that "heterotopias break up the very ground, the 'tabula that enables thought to operate upon the entities of our world, to put them in order, to divide them into classes, to group them according to names that designate their similarities and differences'"; for, according to Foucault, "we 'live inside a set of relations that delineates sites which are irreducible to one another and absolutely not superimposable on one another'" (qtd in Probyn 10). These are the interlocking stories occurring simultaneously in space or in separate virtual rooms of memory, the specular vision of dreams or of electronic networks. This is not a palimpsest. Separate parts of a text are not erased or written over, but continue like an aleph to be simultaneously independent and interconnected. Like heterotopic space, an electronic text is a prism, creating multidimensional viewing and far-reaching analysis that exists outside of conventional structures with their need to hierarchize, order or categorize. "Heterotopia juxtaposes in one real place several different spaces, 'several sites that are in themselves incompatible' or foreign to one another … these are … 'places where many spaces converge and become entangled'" (Probyn 10-11). Electronic texts in virtual space are the intervallic embodiment of "the inextricable doubledness of heterotopic spaces: at once inside and outside, they propose that 'a thing's place [is] no longer anything but a point in its movement'" and that space is always already relational, being the shape of its interconnections with other sites (Probyn 11); virtuality also consists of dynamic space figured inside and outside the body. The fluid network of space(s) in the text is not only heterotopic, but it is also constantly in motion like the Möbius strip or like the *flâneur* in her (sic) uncontainable and excessive roving.

Sally Munt maintains that the artist-voyeur risks being produced, consumed or translated by the gaze of the heterotopic city looking back as much as he or she produces art in the act of looking. This is inherent to the condition of being an outsider. The urban environment—like the electronic one—could position everyone in the role of outsider in the act of active looking as a method of generating meaning in the landscape all around. The *flâneur* herself could be read as an embodiment of space. This space is composed of those gaps in the narrative that are connected but never reconciled, or as the disjunctures that we cannot bring closure to. These spaces are the sites of re-visioning and revolution in a text where, according to Foucault, systems of order are disrupted. The feminist *flâneur* thereby appropriates a heterotopia of "deviation" for herself; a space where individuals' behaviour does not conform to societal expectations (Probyn 10) and in which *desire* is the catalyst for movement. Desire requires both the existence of and entrance to other spaces and, as a result, motion can become heterotopic space.[82] Like the urban voyager, the only control we have over our direction in our browsing in the electronic realm is via nomadic logic, is in the ways we move and in the choices we make along the way. Nomadic desire, ecstatic journeying or wanderlust (call it what you will) is the sum of our transformative journey through these entangled textual spaces. Nomadic desire is the meeting of our temporal desire—movement, direction, speed and memories—and our spatial desire, that is our need to map, entangle systems, modalities, subjectivities and mnemonic orderings, to create disorientation, ruptures and loopholes to produce the rapturous transformation of the archival journey. This chapter will explore the performance of time and space as a form of mnemonic engagement with sensory and perceptual dimensions common only to the body. Like rereading, which resituates us in time and space in relation to our memory of a text, our embodied browsings in new media texts raise mnemonic issues, both temporal and spatial, only navigable at these sites of intersection between past, present and future.

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[82] There seem to be parallels here between the crusading artist-poet cruising alone in the city and the shaman on a vision quest. The ecstatic technique of shamanism requires a

ii. Knots in the Cosmos

> "In space-time everything which for us constitutes the past, the present, the future is given in block… Each observer, as his time passes, discovers, so to speak, new slices of space-time which appear to him as successive aspects of the material world, though in reality the ensemble of events constituting space-time exist prior to his knowledge of them" – Louis de Broglie

> "A paragraph is a time and place not a syntactical unit." – Lyn Hejinian

Connectivity has been called the genius of feminism by theorist Robin Morgan (53), and this genius is being realized in electronic spaces and texts in more complex ways than in any other medium to date. Connectivity's key position in the quantum feminist universe is reaffirmed by VNS Matrix's choice of the image of the matrix—the cosmic womb—as its symbol as much as by the OBN defining its local chapters as

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kind of desirous voyaging by a cultural outsider (by definition); this carries her over to another plane of existence: "the shaman experiences something akin to the divine and gains access to a matrix of generative force and power, returning with a supernatural power that he acquires as a result of direct personal experience. The shaman's soul journeys to its source, the source of all soul, and this gives his function in society a larger scope" (R. Ryan 3). The *flâneur* cruises as an expression of her (sic) desire, stepping outside of the hustle and bustle of the city to look at and make visual connection with bodies in space.

"nodes" that "collide, disintegrate, regenerate, engage, disembody, reform, collapse, renew, abandon, revise, revitalize and expand" (OBN FAQ 7). These structural and mechanical concerns are not accidental. Quantum feminisms do not inhabit a network; they are the network of feminist discourse in virtual space. In the archival text, this dynamic connectivity, interconnection and disconnection, is both narratological structure and the means of navigation in space and time. The lurch and the jump of a browser's deterritorialized journey through a hyperlinked text simultaneously problematizes connectivity, perspective and the nature of multidimensional space even as it explores them. The tendency is always to speak of and visualize the tangible rather than what lies in between joining one artifact, page, or space to the next. Carolyn Guyer dubs this no-place between screens a "buzz-daze state," that is a feeling of dis/orientation in "being split among places" (n.p.). Luce Irigaray has asked, "What do we call a gap that is full?" (qtd in Joyce, 1995, 207) and in the webbed space of hyperlinked fiction the pregnant gaps between the nodes are at least as important as the textual nodes themselves. The nodes exist in conjunction with the dynamic space of the journey and cannot be discussed in isolation. This information gap can only be travelled through and never visited directly because it is the interpolation of space and nonspace. It is mnemonic space: the fleeting space between the moment of remembering and forgetting. This is not the white space of the printed page, but instead the full, noisy gap of the cyberspatial leap through sensual and perceptual space. These gaps are felt, not seen.

Quantum feminist works make no attempt to reconcile this dislocation between networked nodes and their gaps in space-time. Instead, they foreground and use this aspect, highlighting the disjunctures of the subject's position as she is depicted and as she voyages through the text. These nodes of the new media—what we might think of as pages in a print context[83] or as windows on a computer—are sites of both connectivity and dislocation that are interwoven with and perforated by links, those directional indicators for leaps to new locations across the "gutters" of the form (as Stuart Moulthrop dubs these breaks). "Gutters," he says, are "both the division between components in sequential art and by analogy any boundary that separates cultural domains" ("Misadventure" n.p.). These gutters are pauses, structural gaps, moments out of time and spatial entities in their own right, as well as low moments in the history of (print) culture. The sites of connection between nodes as destination are both fluid and fixed, constantly forming and reforming as we call them up, jump the divide via links, and encounter them anew, recontextualized and resituated by arrivals and departures across the gaps in our browsing and rereading. Nodes are self-contained units that branch multidimensionally across rifts of space and time.

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[83] In the same way, Stéphane Mallarmé proposed that a poet should "'avoid narrative' and 'space out'" a poem so that "the page, with its typographic space, not the line, is the unit of verse" (qtd in Ong 129).

In her essay "The Roots of Nonlinearity," hypertextualist Christie Sheffield Sanford says that modern physics has elided the concept of absolutes in time and space and that this is evident in the texts of the new media as well. She uses indeterminacy theorist Werner Heisenberg to support her theories; he said: "There is no definite initial point of view from which radiate routes into all fields of the perceptible ... all perception must ... be suspended over an unfathomable depth. When we talk about reality, we never start at the beginning" (qtd in Sanford, "Position"). In Sanford's hyperlinked text as in life, we begin anywhere and remain immersed in the sensuousness of the present moment. Focusing on this 'sensible' realm of theoretical physics, Heisenberg demonstrates in the physical world that the observer's very presence undermines cause and effect, and influences "the flow of events" ("Probability"). Flow is something that we generally connect with time and linearity, but in the new media, as in physics, cause does not always neatly equal effect. Sanford strives to realize Heisenberg's theories in the "passages"[84] ("Emptiness") of her essay through the use of DHTML layering and multiple windows—a way, she says, of "coding the page in a more temporal and spatial manner" ("Dynamism"). Like a comic book, Sanford's essay factors the narrative gaps and gutters directly into her 'story'; unlike comics, there is no prescribed sequence or predetermined narrative trajectory for the browser to follow in this text. Trying to cut her text "adrift" from conventional concepts of narrative ("Configuration"), Sanford describes the expanding geometrical space of her particularized narrative/essay as a flower's ripe seedhead:

> I blow a dandelion rosette into the wind; it travels into all fields of the perceptible. What a story those seeds could tell. Nonlinear dandelion story. Seeds writing on the wind. Heisenberg wanted us to learn the handwriting of atoms. ("Emptiness")

Sanford's atomic handwriting is a constellation of particles linked across a textual sky of space and time. While the "Roots" of her theory of web.art are not so much historical as interdisciplinary, her thinking visually plots—geometrizes—the curved space-time trajectory of the nature of a new form. The interlinked network of hypertextual narrative has frequently been described as a web or as a rhizome, a quilt, or as a collection of threads or boxes within boxes; however, it might in fact be most revealing to think of each node as a topological knot that is both connector and connection across spatio-temporal boundaries.

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[84] Sanford says, "passages are discontinuous or nonlinear. The language shifts in time/voice/setting in a significant way... I think of them as passages rather than paragraphs. They are both, but passages has a temporal connotation" ("Emptiness"). They also imply motion or movement through space. This is what Sanford dubs 'turbulence.' See Section iv, Wanderlust, in this chapter for a further discussion of turbulence.

The means of accessing the spatio-temporal 'information' of the new media text beyond the interface is via the conceptual designs or visual mapping of these structural knots that get depicted as iconographic or metaphorical architectures. The interface is the visual realm where the structure of the textual information is conceptualized, where its boundaries are drawn and where we as browsers interact with the computer in space. In the Windows and Macintosh operating systems, the metaphor we engage with is that of an office desktop via files, folders and a trash can or recycle bin. In electronic narratives, the interface is designed anew for each text with the metaphor being specific to the content of that particular work. In his article "Visual Structuring of Hyperfiction Narratives," Raine Koskimaa discusses how the quilted technicolour, conceptual and metaphorical map of *Patchwork Girl* occupies cognitive space in the text as a highly symbolic directional or navigational indicator. This quilt is also the site of intertextuality, the place where the voices of the parent texts—L. Frank Baum's *Patchwork Girl of Oz* and Mary Shelley's *Frankenstein* among others—reassert themselves and intertwine with the monster's own. Symbolism not withstanding, interface metaphors of networked texts are perhaps most remarkable for their uselessness. By 'useless' I mean that their value is primarily aesthetic in nature. They do not function very well as literal maps because, even as they direct our navigation, they are primarily metaphorical in nature. Like *Califia*'s mandala and its paths in four compass directions, the metaphors of engagement create a sense of order in the midst of randomness and remind us that we are 'lost' in the text. In *Patchwork Girl*, the quilt serves to remind us that Jackson's monster is descended from a long line of monsters, including Mary Shelley herself. These metaphors continually jog our memories that cartographic space is not literally navigable and encourage us to seek out the informational gaps and unexplored areas of the text, what Koskimaa calls the "'blank areas' on the map" (Koskimaa n.p.). They also transcode the topological dimensions of the narratological knot onto a two-dimensional plane where conceptualization of the whole is simplified. These interface metaphor are also crucial to our experience of and navigation through the text. As I have mentioned elsewhere, it is our ability to navigate these interfaces as conceptual space with a mouse that engenders agency for the browser.

The interface is ultimately just the window or doorway through which we access a text,[85] even as it aspires to transparency. This is because the interface is primarily a navigational tool giving access to the stored archival materials that constitute our readings, as well as forming a jumping off point over the particulate structure of the text. Most interfaces, *Patchwork Girl's* for one, incorporate a default mode where the author has provided a path that gives the illusion of order and an apparently linear reading trajectory. The text itself constantly works to undermine these illusions. As Stuart Moulthrop has noted of adventure games, "these constructions are fundamentally and paradoxically extensive, fundamentally **riven**, like their players, between one path and its alternatives, between saga and interface, hierarchy and network" (original emphasis; "Misadventure" n.p.). The Patchwork Girl's body is sliced up into bits, each with its own past and alternative futures, just as Violet's connection to past, present and future in *Califia* is fractured and discontinuous. Similarly, Steve, a.k.a. The Codger, gets trapped outside of time in the memory core of the *Glide* maze because "He still thinks there's only two sides to the maze—to anything. Only ins and outs. He can't see the in-between" (vi.29-5). They entangle their own stories and space of engagement with the world and with their own tensions between the hierarchy of normalcy and the network of personal realities. The ambiguities inherent in such a network of holes help hold together the associational order of the fiction. Koskimaa observes that in hyperfiction: "The lexias [or nodes] themselves don't create a strong feeling of temporal succession or causality among themselves. On the other hand, as Landow pointed out: 'The very existence of links in hypermedia conditions the reader to expect purposeful, important relationships between linked materials'" (qtd in Koskimaa n.p.). It is our act of reading that constructs the connections in meaning across the gaps, for, these are not simple, linear, one-to-one linkages, but archival collections of associationally related data.

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[85] Just! Everything is ultimately about access in this medium.

Navigational devices encourage us to search for a linear temporality along our journey, but in hypertext fiction what we actually uncover is a form of Sanford's 'turbulence': (reading) sequence rather than succession, instantaneity rather than simultaneity or synchronicity, indeterminancy rather than order. These elements are often foregrounded with alternate plots or multiple narrators. Electronic fiction, with its self-conscious roots in secondary orality and archival structure, privileges a multiplicity of voices and informational fields over causality. These texts thereby lend themselves to a chorus of voices and discourage singularity in perspective. This douses the reader in a babble of voices—like the Patchwork Girl's many, many owners of her original parts. It is we as browsers who must separate the threaded points of view in order to assign order and intent to events in the text. This is emblematic of Castell's network society with its material Space of Place, embodied existence plus objects of cultural memory like architecture and monuments, and its timeless (or pan-temporal) Space of Flows, simultaneous, virtual, informational and economic fields, where the interplay between Place and Flows produces a dialectic (Kluitenberg n.p.). It is also a representation of rhizomatic structure, as was discussed in Chapter 2. Sequence becomes the story when reading is the plot, and our goal as browsers becomes the impulse to map the text or to flesh out the gaps in the narrative rather than reach closure. As Stuart Moulthrop says, "To conceive of text as a navigable space is not the same as seeing it in terms of a single, predetermined course of reading" (qtd in Koskimaa n.p.).

Like the knot, the rhizome also exists across all of the dimensions of space. It is multilayered and complex, pushing its way in all directions into an envelope of earth, and, like the multilayered windows of the Macintosh and Windows operating systems, we often navigate Jackson's and Coverley's hypertexts through sedimentary windows that are stacked within the text.[86] (Glide follows an entirely different format that will be discussed at length in Sections iii and iv.) Browsing in the network text becomes a way of sorting through the threads of the narrative as a mnemonic gesture that selects knotted patterns in the fabric of the story, rather than the plot. Terry Harpold too has evoked the knot in the context of hyperlinked fiction. He says,

> I will propose, in place of the customary metaphor of a docuverse constituted by a set of linked threads, another metaphor: the docuverse as a weave of *knotted* threads. The figure of the knot is preferable to that of the link in that it figures both the interlaced relations of discrete narratives and the gaps between them. (Harpold 171)

I see the knot and the link as distinct; the knot transcends space-time, reaching across all planes simultaneously as a means of information storage, while the link is a means of navigating through this information and enacting the spatio-temporal jump, the act of browsing. The link is a jump within a system, a connection through disconnection, whereas the knot is always already connected, uniting the flow intradimensionally as it simultaneously severs the flow of information by tightening around itself. The link is a gesture performed by the body whereas the knot is a method of information encryption, the means by which the data gets written on the body. If the link is gesture—what we do—then the knot is what we are—our memories, those emergent properties of our perceptual system as a whole. Robert Shields argues that the hyperlink is a "process of invocation or a 'calling'" that is key to the gestures of data storage and retrieval (Shields 153). The link is a rupture of space-time while the knot transcends dimensions like the Möbius strip, existing across the divide, linking between. The link is action and dynamic change; the knot is structural and archival. The conceptual knot is the way memory gets stored in the text and in the body (of the text). This means that if the knot is a storage device or medium, then the link is the means of navigation through a text, literally being the performance of the dynamic organizational structure. The knot, as a model of the performed cosmological structure of narrative in the new media, helps demonstrate how the body, subjectivity and memory weave together the gaps of the spatio-temporal dislocation of virtual space to become a new way of speaking—and inhabiting—feminist networked texts.

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[86] Steven Johnson has examined the revolutionary nature of the addition of the third dimension to the electronic environment:

> Engelbart and Sutherland had endowed the digital computer with space [via the object-oriented interface]; [Alan] Kay's overlapping windows gave it *depth.* It was a subtle distinction, but a profound one. You could move in and out of the landscape on the screen, pull things toward you or push them farther away. The bitmapping revolution had given us a visual language for information, but Kay's stacks of paper suggested a more three-dimensional approach, a screen-space you could enter into (47).

If the networked text is a web connected by knots, then each knot forms a node and each node is interwoven by automated links. The nodes are everywhere and nowhere, appearing and disappearing as we call them up and allow them to linger in our memory. The links they contain are not usually random, but can follow any number of sequential paths from spatially adjacent node to node. The threads that allow us to browse along these paths are linked, encircling the emptiness of the gap in themselves that they cradle, but we make our individual choices within that framework as to which direction we choose to travel. The knot is a connector plug into the web of multiplicity in the networked text and, as such, it is both subjective point of view and virtual place in the simultaneously hollow and full network of the text. A useful parallel might be drawn from mathematics; in knot theory, a series of base knots have each been assigned a number. Among the most cryptic string of numbers, no two knots are identical and yet they are numerically irreducible. In mathematical equations as in the networked text, the ends of knots are joined to form a feedback loop or Möbius strip "to 'keep in' the knottedness" (Fink 49)—the empty space. Each mathematical knot is one of a nonhierarchical, nonsequential string of numbers occupying topological space. (In fact, attempts to predict a mathematical sequence for knots have even bamboozled sophisticated computers [Fink 51]). Rhizome-like, threads come together geometrically and are ends of the same string or a part of a networked whole because a knot by definition is tied in a single piece of rope around an empty gap in space and time. If we apply this mathematical model to space-time geometry, the essence of cosmology, we discover that the universe itself is informational[87] being a web with matter perforating space and with all points linked together through the spatial dimensions. If we apply a knotted cosmology to narrative structure, the universe of the quantum feminist text might be seen as a web woven of information multiplicity representing, like space-time geometry and Celtic knots, the connectedness of all things and the path of a lifetime. Like the universe, the nodes or knots of the networked text always exist connected in time and multidimensional geometric space, starting into wakefulness when a browser activates a link and engages with the material in the present tense—which is sensory space, a space that is a state and place of embodiment. Each knot or node in space can therefore also represent a particular trajectivity—in short, a unique point of view—and thereby birth fractal subjectivities or perceptual dimensions within the text itself. It is this union of knot as both perspective and place that engenders situated knowledges for a browser of the networked text. Each point in place is a specific embodied position.

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[87] In fact, not only is the universe informational, but Stephen Hawking and other physicists have used information theory as the foundation of quantum theory. Entropy = information (as, for example, information is the content of a black hole) (Holz 452). Even

In *The Maze Game*, for example, when The Codger gets trapped inside the maze—inside of the game itself, that is—Óh-T'bee's twing (a motion in space as she dances to resolve irreconcilables in her memory core) begins to loosen the knots that are binding him and his eight avatars in virtual space:

> The smaller knots unraveled. But there was one big knot in the center of his awareness for which he could not find an end to begin unraveling. It was all one string, winding in and out of itself. He could sense the parts of it, curving away from where he was located. He could travel on the paths, he could even push it around a bit, pull the loops through each other, but as he pushed a clearing in on one area, another grew denser, more complex (vi.25.1).

It is when Steve realizes that *he* is the knot he is "trying to untie" (vi.25.2) that Óh-T'bee consents to reinstate him in the game. It is only as a knot though that he can occupy the fractal subjectivities of nine simultaneous selves across multiple dimensions. The storage medium for himselves is a conceptual knot in the Outmind's core.

A narratological construct of knots in space as a fictional structure—like Indra's net, Aboriginal songlines and the World Wide Web—is a cosmology on a human scale that inhabits metaphysical, sensory and perceptual planes. If each quantum feminist text is a web of unique knots and a universe in its own right, then the interface must be

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more recently, DNA and information have been discovered to have mathematical equivalencies. In a surprising adaptation of findings, DNA genome sequencing packets have been applied to information flow on the Internet to improve transmission speeds (Sterling). Art is being resequenced into this paradigm as well, as was discussed in Chapter 3. Lev Manovich sees the new media as occupying simultaneously an information dimension and an experiential or aesthetic plane (Manovich 66).

designed specific to each system with each 'universe' having its own rules, regulations and "*nodus operandi*" (Fink 44). There are in fact not one but several space-times in operation in each hypertext. The browser, narrator(s) and the structure/technology all inhabit their own personal dimensions. Sometimes these align. In the metatextual spaces of *Patchwork Girl,* the monster as a self-reflexive voice reading her own 'text' occupies a perspective that is very close to that of her browser. The browser of *Califia,* on the other hand, can accompany Augusta, Kaye and Calvin on their journeys, but she always remains at a distance as an observer of their travels and discoveries. *Glide* is different again. The browser must assume the role of a Dancer in order to receive a three-glyph or nine-glyph oracle and play the game. The browser does not become one of the four Dancers in the novel though; their roles are played by the Dancers themselves. As browsers, our own dance makes us a participant in our own right. The glyphs that make up the oracle, which the Lily casts for us, are the gap or the hole—the three missing characters on the 27-glyph game griddle. As the gap in the maze, these three glyphs contain the meaning (including the outcome) of the dance, which must be interpreted: "the meaning of the missing glyphs is always clear in hindsight. Strange, because everyone *still* interprets it [the game] differently. But the retrospective interpretation seems to bring some closure" (v.24-2). While we acquire a truer interactivity with the Glide oracle and *Collabyrinth* than with the other texts, we still only play at the game through the oracle, rather than dancing and dying as a Dancer. In addition to the browser's and narrator's space-times, each of these texts also has a technological or structural space-time that is important too. The browser does not simply read the texts, but must navigate the interfaces as well. The gaps and ruptures that we travel through are the larger landscape of the textual cosmos. Oftentimes, the facts of physical navigation have a spatio-temporal effect on us as we browse that is outside of and beyond the story. Specific examples of this will be discussed later in this chapter as the interface for each of the three textual universes is explored in greater detail. And, since the networked text does mimic cosmological motion in space-time, it might also be useful to first draw some parallels with Gottfried Leibniz's eighteenth century metaphysical cosmology that evoked a network of connectivity.

Leibniz called his metaphysical map for a universe of networked beings a monadology. Each being, a monad, operated like a computer terminal on a network. Each was freestanding and autonomous, the One in the Many and the Many in the One, simultaneously plugged into a larger interconnected system, but existing in isolation as a singular subjectivity aware only of its own virtual world:

> The term *monadology* comes from the Greek *monas*, as in "monastic," "monk," and "monopoly." It refers to a certain kind of aloneness, a solitude in which each being pursues its appetites in isolation from all

> other beings, which also are solitary. The monad exists as an independent point of vital willpower, a surging drive to achieve its own goals according to its own internal dictates. Because they are a sheer, vital thrust, the monads do not have inert spatial dimensions but *produce space* as a by-product of their activity. Monads are nonphysical, psychical substances whose forceful life is an immanent activity. For monads, there is no outer world to access, no larger, broader vision. What the monads see are the projections of their own appetites and their own ideas. In Leibniz's succinct phrase: "Monads have no windows" (Heim 97).

Are the monads perspectiveless subjects or subjectless perspectives? Despite their very multiplicity, they are virtual and manufacture intrinsic dimensions through their dynamic, if two-dimensional, unfolding. Anything that does not take up space must occupy a virtual realm and, as such, the monad's existence is in a sensual and perceptual universe driven by subjective will. The implications of producing space for the *nomadic* voyager in the virtual text are rendered dynamic as the browser in motion, unlike the binary monad who can only move in two directions, does not simply create but *performs* space as well in the reading of the text. Furthermore, nomads are *all* window. It is their perspective, their subjectivity that is key to their behaviour and movement in space-time.

The static monad sees life only in simulation in its interface with an individual reality, and experiences that reality through its senses (Heim 98). This is cosmology on a personal scale: "Like Indra's net, each monad mirrors the whole world. Each monad represents the universe in concentrated form, making within itself a *mundus concentratus*" (Heim 98). The significance of the monad's cosmology is that each one's universe is complete and offers a unique perspective. Like the shifts in perspective that have marked the great ages of Western civilization, so the monad becomes isolated as a singularity, a single universe in a clockworks of many universes: each a freestanding terminal in a larger network, each irreducible from the system that she emerges out of as an individual (Deleuze, 1993, 24). Conversely, in addition to these qualities, the nomad privileges subjectivity, but one that is in a fractal state; it is in flux. In other words, the nomad embodies trajectivity. In motion with her perspective constantly changing, the nomad, unlike the monad, is self-aware. For her, the birth of situated knowledge occurs in the environment of information multiplicity.

These are two maps of the electronic world. The virtual networked universe makes space (the other universe, the physical one, has been in a constant state of expansion since the big bang) and expands in response to the needs of all of the individual browsers; however, it is also important to realize that the network is also an alternate image of the physical universe as it exists in hyperspace. Hyperspace as a concept was born in the 1980s as a result of physicists' attempts to reconcile the contradictory theories of quantum mechanics and relativity. Where quantum mechanics explains the behaviour of microscopic objects and molecular topologies, Einstein's general theory of relativity explains the behaviour of heavenly bodies and the conception of the universe. These theories follow different mathematical models and contradict each other. Both could not be true, or so it was assumed. Physicists proposed instead that the two conflicting cosmologies could in fact be reconciled if the basic building block of matter was not the atom, but something resembling a knot of DNA: a string or a tiny knotted loop that is the keeper and memory of the nature of all matter through its harmonic resonance. With the introduction of the conceptual knot—superstring theory as the foundation of everything[88]—into the fabric of space, hyperspace was born. Hyperspace is a tapestry of the eleven dimensions that physicists now believe comprise the known universe. Only the first four dimensions, collectively known as space-time, are sensible to our perceptions; all the others are microscopic and extra-sensory. The higher dimensions are undetectable to senses and so literally 'inconceivable' in our own imaginative space. By definition then, the senses, the perceptions and time (time being reduced to a single dimension of hyperspace and no longer a governing dimension) are all elided from the scientists' view of the physical universe. Personal experience, like time, is demoted to the position of "structured nothingness" in the new physics (Wertheim 217) or, as Gary Zukav argues, the process of experience might be said to occupy its own dimension outside of space-time (295). By contrast and in startling opposition to the physics of the cosmos, cyberspace like lived experience reinserts the body in time and space back into the universe of the matrix.

Cyberspace is a new dimension for embodied space for the twentieth century and beyond, Wertheim argues, that is more akin to medieval soul-space—celestial as opposed to terrestrial space—than anything we have seen in the intervening years. Cyberspace is sensory or perceptual space, and like Leibniz's monadology, it is a dimension of the body in space-time. It is nomadic space where each individual inhabits fractal and unique dimensions, existing as knots in an informational network of multiplicities. "Information multiplicities," says John Johnston, "are profoundly corrosive of older cultural forms and identities, dissolving subjects and objects alike into systems, processes and nodes in the circuits and flow of information exchange" (Johnston 3). Quantum feminist knots in the networked text, therefore by definition, become viral agents and sites of resistance, using the friction of the form as an aesthetic. But where phallocentric information multiplicities consume subjectivities, quantum feminist ones proliferate them fractally as orientations, trajectories, processes and movements.

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[88] See Brian Greene's *The Elegant Universe* for an informed and elegant exploration of superstring physics and its key issues.

For quantum feminist mecanics then, we can posit virtual space as a re-visioning and transcoding of Leibniz's metaphysical universe, his monadology, into the form of a *nomadology*—a pan-dimensional space that privileges trajective motion, the senses, subjectivity (i.e. perspective), multiplicity and embodied time. A nomadology, for Deleuze and Guattari, is also a corrosive agent, existing outside of the system/state and in opposition to it. The nomadic viral agent spreads its desire to circulate, to be in motion as a form of resisting static, singular subjecthood (to voyage is to willingly become foreign, they say), to refuse to be fixed within a paradigm or flattened to two dimensions, to refuse simplex dimensionality as a way of breaking free of the confines of linear narrative, and of refusing the containment of the page. Like the practitioner of the *ars memoria*, the nomad is always in the act of traversing space and it is this act that generates the spatial dimension of the threads of the networked text in all of its multiplicity. The fictional space is woven of a network of knots with each knot being always connected, always embodied, and always existing in relation. The vibrating strings or knots at the heart of a nomadology are memes, the smallest units of culture—narrative in this case—that are transmittable. Like monads, browsing nomads make space in the virtual information field, but nomads are also always already in motion, dynamic, viral and memetic, circulating in the arteries of virtual space—equal parts infection and resistance, always by definition outside of the economy of the system.

The knot as a form of resistance is also a useful metaphor for the interlinking of body and subjectivity in feminist texts. The fictional space must always be traversed between the nodes on the network. The virtual body in the performance space of the text is a component of subjectivity and of quantum feminist material concerns. As with everything else in virtual space though, there is no single unified or solitary body:

> it is more adequate to speak of our body in terms of embodiment, that is to say of multiple bodies or sets of embodied positions. Embodiment means that we are situated subjects, capable of performing sets of (inter)actions, which are— discontinuous in space and time. Embodied subjectivity is thus a paradox … (Braidotti "Cyberfeminism")

Fractal bodies are fragmentary and interconnected, occupying and performing the knotted geometric dimensions in space-time in the same way that subjectivities and genders do. This is an embodied manifestation of the mnemonic nature of the browser's disjunctive journey through the archival text. It is also mnemonic space where conceptual knots get encoded or stored as repressed memories—lumpy snarls in the fabric of the text, so-called 'forgotten' events in our reading, items that we have encountered earlier that we continue to return to in order to resolve. This has significance in terms of the browser's healing journey, which will be discussed in relation to trauma and repressed memories later in this section, and also in terms of the measure of time as a repetition of intervals.

Time and memory are virtual and "only become visible, hence real, by being measured" (Barnett 170) or recollected.

For author and critic A.S. Byatt, knots represent not just memory, but the circuitous connections of an embodied subjectivity:

> I've replaced the post-romantic metaphor with one of a knot. I see individuals now as knots... Things go through us—the genetic code, the history of the nation, the language or languages we speak…the constraints that are put upon us, the people who are around us. And if we are an individual, it's because these threads are knotted together in this particular time and this particular place, and they hold. I also have no metaphysical sense of the self, and I see this knot as vulnerable: you could cut one or two threads of it… We are connected, and we also are a connection which is a separate and unrepeated object (qtd in Bronfen 42).

This concept of knotted subjectivity as both connector and connection, plug and socket, is an apt description of the browser in the new media. Elisabeth Bronfen builds on Byatt's idea arguing for knotted subjectivity as multiplicity, becoming "a new form of integration" where both individual connectedness and "uniqueness" are given free play and equal time (42). The knotted subject is, therefore, not exclusively constructed by representations, but acts as both mediation and connection, severance and union, between two realities in a vulnerable body (50); the knotted subject is a modality or a mediator between the old master narratives and memory, the site where the body meets what is speakable in language. And, there are provocative parallels between this new knotted subject and the historically embodied subject of the hysteric. Under hysteria, Sigmund Freud dubbed these conceptual memory knots 'the navel of the dream,' a knot that he cut in his theory to explain the dislocation and disconnection of the hysterical speaking subject (Bronfen 45). The quantum feminist methods of countermemory and transformance are similar to hysterical speaking, both enacting as they do a discourse of resistance. However, where the hysterical subject is subject to memory traces that are written on and speak through her body, being in effect a passive receptacle for a wandering womb, the quantum feminist nomad interrogates memory and the body, choosing to be a wandering subject of her own representation. As a trajective subject, the nomad seizes agency and writes—or performs—herself into virtual space, always aware of the vulnerability of her connection to the material body (Bronfen 45 & 50). Both are oppositional stances. The hysteric performs her conceptual knots as resistance to cultural narratives and gender categories (Bronfen 45) and the quantum feminist, a polar opposite, performs her trajective resistance to the forgetfulness of patriarchal history through countermemory in motion in the space-time of new media artworks.

According to Stuart Moulthrop, hypertext narrative itself is innately a form of resistance; the browser enacts a "continuation of struggle" where fragility and vulnerability are integral to the act of reading:

> Anyone who understands the ways of native hypertext knows that the point is not to struggle against hypertext. Rather the act of reading in hypertext is constituted as struggle: a chapter of chances, a chain of detours, a series of revealing failures in commitment out of which come the pleasures of the text. We must understand hypertext as an information highway in which every lane is reserved for breakdowns, a demolition epic in which the vehicles always and constantly blow apart. ("Traveling" n.p.)

Similarly, Terry Harpold talks of the trajectory of the text being composed of 'detours' and Joyce speaks of the 'contours' of the text. In "*Ut Pictura Hyperpoesis*," John Tolva discusses how the browser creates the space of the text, and feels anxiety over unvisited or unmapped sections of a work. "Readers," he says, "are compelled to explore each untraveled link, to separate the signal from the noise, to suppress all the textual 'spots of indeterminacy'" (Tolva n.p.). Electronic narrative works within an "aesthetics of unfinishedness, 'to a foregrounding of disorder over order, or randomness and noise over organization'" (Tolva n.p.), yet spatially and conceptually the narrative emerges from the aesthetic weaving of the browser's movement through the use of these virtual jumps—not the equivalent of the turning of a page, but a folding of space or a freefall into unexplored terrain. Traditional fiction involves a journey of enlightenment for the character(s), but electronic narrative's spiraling return marks a sea change or unfolding for the browser instead. Jackson's reader rediscovers the body, Coverley's browser maps the constellations both in the night sky and on the landscape, and Slattery's Dancer revisualizes language through gesture. The 'ending' and 'beginning'—in this case where the browser stops and starts moving through the text—are changed once a re-reading journey is undertaken. Tolva says that, "Rather than disrupting the concept of spatial form …, links generate it, thwarting temporal flow and opening a space for the reader's mind to construct the extra dimension needed to rationalize the act of 'traveling' a link" (Tolva n.p.). It is not, therefore, surprising that hypertextual narrative lends itself so well to the political and nomadological concerns of feminist discourse with its frictional aesthetic and dynamic body in space-time.

The body speaking—familiar in the image of the hysterical body performing her conceptual knots, that is her stored and encoded traumatic memories—is the site of subjectivity when the body is in motion in the new media as the wandering browser. The body performs memory in time and space; in fact, time is motion in space (Tuan 179) where the body's performance of memories articulates resistance to cultural norms and gender stereotypes. This resistance in turn creates a fractal dimension, a dimension where all subjectivities and genders are simultaneously possible. The body activated in virtual space-time is wandering with a force that has not been seen since Plato's womb let loose in the immersive interactive space of the female form. And, since quantum feminism is a database of intensities redefining fractal dimensions and language for the body, this wandering does not liberate the body from the effects of trauma, but instead (and unlike the hysteric) reconnects and integrates the mnemonic knots as a new kind of sensual and perceptual space. An ecosystem of memory. The Patchwork Girl's body-based memories are preserved in the voices of their original owners where they are arranged on the topological geography of the body mapped out by the browser. *Califia*'s Violet encodes her memories bodily for the reader to experience as was discussed in Chapter 3, and *Glide*'s oracle and *Collabyrinth* swirl in space and time as a stage for performing bodies just as the Glide language had its origins in gesture.

As both connector and connection, the knotted subject—like the dynamic medium of Castells' Space of Place and Space of Flows—fills the gap with motion to become the interface between the audience and the machine (Wilding "Cyberfems" 3) in perceptual and sensual space. It draws the audience in as interactor and embodied speaking subject. This is Margaret Morse's site of installation art, the "discontinuous, unified space" (180), that "crucial space"—lived space —that is "in between" (Morse 157). This is the site of Slattery's proposed 3D interface for the Glide website: "The new website will move from inter-face (a surface, however expressive) to inter-space; one move *through* and *around* in addition to *on* and *over*" ("The Glide Project" 27). This is OBN's site of activism that "builds spaces" for resistant speaking (OBN FAQ #4). This is Jacques Lacan's gaps in the hysteric's discourse called the "inter-dit"—a pun meaning both 'forbidden' and 'between saying'—which, like *chora*, is a space outside of language inhabited by the unspeakable, by that which literally cannot be spoken (qtd in Harpold 174). If, as Donna Haraway says, the body is a machine made out of words inscribed by time and memory, then the performance space of knotted subjectivity is not simply uncontainable, but contagious and nomadic as well. It is transgressive speaking that circulates outside of patrilineal culture, and, like the cyborg, Jackson's monster, Coverley's Violet and Slattery's Outmind naturally enact their transgression in language frame-by-frame through body-based thinking: the audacious site of this truly monstrous thought process. A nomadology is a conceptually knotted subjective embodiment, forming the skin of mediation and connection between realities, the fraught interface between the virtual and the real. Knotted subjectivity in motion is uncontainable, quantum and viral, "sustained and disabled by the gap that opens up in the detour" of navigation (Harpold 174), but it is also integrally interconnected with the cosmological, narrative fabric, with both the gaps we leap and the story we travel through.

iii. The Tangled Trajectories of Nomadic Logic

"Travel is a conversation between places." – Tim McLaughlin

The original theorists were "tourists" who practiced "active observation." Theirs was "a perceptual system that included asking questions, listening to stories and local myths, and feeling as well as hearing and seeing. The world theorists who traveled around 600 B.C. were spectators who responded to the expressive energies of places" (Ulmer 12) and they might pose a helpful model for thinking of our browsings in the knotted, perceptual and sensual space-time of this new textual and visual medium for feminist ends: we watch, listen, touch, remember, situate and perform the story-maps of our own exploratory sensations of these new media works. This is nomadism and a way of interconnecting disciplines in associational ways. "Nomadic consciousness" argues Rosi Braidotti,

> is akin to what Foucault called countermemory; it is a form of resisting assimilation or homologation into dominant ways of representing the self. Feminists...enact a rebellion of subjugated knowledges. The nomadic tense is the imperfect: it is active, continuous; the nomadic trajectory is controlled speed. The nomadic style is about transitions and passages without predetermined destinations or lost homelands. The nomad's relationship to the earth is one of transitory attachment and cyclical frequentation... (1994, 25).

A feminist immersive environment offers the potential to act as a fluid map of memory—feminist countermemory—where a browser, who is constantly "in transit" (Braidotti, 1994, 93), can draw circumlocutions in the multidimensional sands of constantly changing narrative space. As trajective browsers our constant is flight, but our landing site is indeterminate. Guided by the structural organization, we can choose our future—our link—but cannot control what we will find at the end of that trajectory. In opposition to teleology, here is the agency in the browser's journey: the ability to choose her own path.

The very fluidity of an electronic environment, however, also generates anxiety because of this apparent formlessness (a condition of too much choice), and Janet Murray argues that successful environments succeed precisely by harnessing this anxiety, these conceptual knots, and "arousing and regulating" them through the act of navigation (135). She elaborates:

> navigation ... is like pacing the floor; a physical manifestation of the effort to come to terms with trauma, it represents the mind's repeated attempts to

> return to a shocking event in an effort to absorb it and, finally, get past it. The retracing of the situation from different perspectives leads to a continual deepening in the reader's understanding of what has happened, a deepening that can bring a sense of resolution but one that allows for the complexity of the situation that leaves the moment of shock unchanged and still central (Murray 136).

This makes the navigation of an immersive environment a reassuring way of dealing with a traumatic event because it invites "conflicting emotions" (Murray 136); it invites us to unravel the conceptual knots of mnemonic repression. It breaks the sorrow and pain of the virtual text and the material world down into fragments so that we do not feel the full blast of our emotions in a single instant.

This mode of speaking calls for a dynamic, embodied syntax that incorporates the gaps where language, subjectivity and gender are moving and changing in space-time—just as Jackson, Coverley and Slattery's dynamic, knotted subjectivities within this quantum medium are focal points for embodied telling. The browser's body, with a mind of its own, performs its own "self-reflexive self-representation" (Bronfen 45) and the difficulties of traversing space become the body's story. Friction—or "reluctance" ("rest of my life") as Jackson calls it, endowing the text with a will of its own—thereby becomes an aesthetic of the medium, and resistance, embodied in the nomadology, that spatio-temporal dislocation of the subjective linked network, is the mode of speaking the mnemonic body of the text. Jackson's metatextual modern monster speaks of precisely this dilemma. She says:

> to pause on a given screen—even for a sip of coffee—is an interruption of the flow. The flow which turns out to be the main point. Not the passages I am moving through, however beguiling…but the sheer pleasure of movement. I don't doubt that if I had a continuous life or a block of printed past, Proust for example, I would read it all from start to finish. There's only one way through it and that's the way I'd go, convincing myself that I was aligned with time, but where the spindly bamboo bridges of the links criss-cross the voice…, I run faster and faster over the quivering spans, dizzied by the echoes of my footsteps that rebound from far below me and from above until I doubt up and down and scuttle through a universe of sideways ("flow").

Patchwork Girl's gap is full and movement is always through this space en route to the next node, just as a movement of recollection is, according to Bergson, a leap to a moment in the past. Is the knotted, embodied subject an element of time or of motion in space? In hypertextual space can these be separated? In a hypertext does not time + motion = nomadic space? More to the point, a subject that is in a constant state of interruption from screen to screen with that virtual jump or sideways scuttle folds time and space, and realizes the blurring of light speed achieved by the body in the new media.

It is the body in the act of leaping the gap at the heart of space-time that matters in the skeletal architecture of the archival text. This is an act of transformance. It is embodied architecture, that performative browser body in virtual, mnemonic space that drives our experience of the form, rather than the much touted impersonal machine architectures and technological functions. (Of course, the two cannot be separated either. There are profound interconnections between them; however, as browsers, we are more consciously aware of the immersive experience than of the machinery behind the text as we engage with the narrative.) Jackson, Coverley and Slattery in their writing for the new media remake the machine as a (female) body, and their (textual) body is the machine. The *dea ex machina* is the embodied form, the hauntings of voices—like the Greek gods suspended above the stage that gave rise to the original ghost in the machine—that echo in the spatio-temporal dislocation of their virtual fiction. Just as the flesh and blood body can only exist in space and time, so the body in the new media, the browser's presence, is distinctly set apart from the random chance of the boy toys that form the majority of male efforts in the medium—what Peter Lunenfeld calls mere 'media attractions', novelty items designed to do nothing but impress (xix). Electrified body-space and body-time shock. They are literally sensational and synaesthesic. The archival text revels in breakdown, "the moment of impact," "profound shock" and "reflexively refigures its own assault on the textual corpus in terms of insults to the physical body" (Moulthrop, "Traveling" n.p.). The ruptures in the form are temporalities spatialized and, in contrast to Moulthrop's vision of bodily harm, body space-time is more accurately the pulsing heartbeat in the machinery of the form—embodied, yes, but not brutalized. As I mentioned in the Introduction, rupture is also a strategy that is of particular interest to feminist writers. The fractal dimensions of the browser body leap outward along the z-axis, exciting ruptures in language like Donna Haraway's cyborgian pleasure in the confusion of boundaries between body and machine. This embodied dimension reincorporates the corporeal and the spiritual into space-time in a way that has not been seen since Descartes split the world into two halves: *res extensa*, matter, and *res cognitans*, the spirit. In the new media, the body of the browser—like Jackson's metabrowser monster or Slattery's octopus-like all-knowing, all-seeing Outmind who touches all of her citizens simultaneously through their scorecards—is not just in space, the body *is* space, time and architecture. The transforming journey is the text. In virtuality, the body measures time and memory not in aging, the reality of gravity, the circlings of the earth, or in the erosion of days that furrow the skin. Virtual bodies are permeable and interweave the corporeal with machine language in oppositional stances. These interweavings, for Haraway, create "webs of power" that birth "new couplings, new coalitions" (170); they are permeable to language and information being not one code or common language, but many codes and many languages. They are viruses in circulation in mnemonic space. In short, a chorus of voices and a web of fractal subjectivities are written via memory traces—in conceptual knots—on the voyagings of the body.

Jackson, Coverley and Slattery find ways to articulate paths of healing by deterritorializing women in language, by spiraling out and along the z-axis over the gaps and away from the ground of patrilinear culture into newly envisioned feminist dimensions of physical, psychological and linguistic space: knotted space-time. As Gail Scott notes in *Spaces Like Stairs*, the novel is a form ill-suited to women's use with its relentless forward trajectory of linear narrative. In their texts, Jackson, Coverley and Slattery use the new media to break this linearity, to tie it in knots, to speak in the narrative voice of the networked "endless circulation" (Irigaray 63) and continuous present of the female body. Concerned navigators, these three authors speak memory, the body, history and space in innovative ways that interrogate women's free-form and fluid position outside of the map of amnesiatic patrilinear narrative.

The quantum feminist nomad is unhinged from the fixed coordinates of space-time, operating always in the present tense, capable of moving in any direction all at once, as she inhabits the many-layered surfaces of space. As nomadologies, *Patchwork Girl* and *Califia* have narrators, and *The Maze Game* has a supercomputer character, that act as viruses in circulation outside of the patriarchal constructs of 'text.' Like the Deleuze and Guattarian nomadology, it is important to note that the nomadic subject in these texts is not ahistorical or even panhistorical, but in opposition to history altogether. Jackson's monster says:

> But where am I now? I am in a here and present moment that has no history and no expectations for the future.
>
> Or rather, history is only a haphazard hopscotch through other present moments. How I got from one to the other is unclear. Though I could list my past moments, they would remain discrete (and recombinant in potential if not in fact), hence without shape, without end, without story. Or with as many stories as I care to put together ("this writing").

As a merging of the trajective browser and narrator, she is mnemonic flux in both smooth and striated space: she is the interplay, the space between the memory and forgetting. A desiring viral agent, she is all connections, entrances and exits, arrivals and departures to and from the system. As narrator and browser of her own historicized body, she is the agent of movement between. She is the knotted cosmos in expansive motion.

Similarly, Óh-T'bee in *The Maze Game* is the embodied, sentient archive of the Glide culture itself. When her twing reaches its climax, Óh-T'bee's 'body' explodes and then, in a temporal reversal, implodes:

> The images that Óh-T'bee had gathered continuously at every gaze-point for 2000 years spewed forth, as if the universe were creating itself at top speed from every point, a giant fireworks display of *all time, all memory*. Every gaze-point burst in a geyser of backward moving images. The images flowed and blinked at the same time, an unbearable flicker, as every transit, every blink re-ran. ... The eye of the hurricane passed. Then each point of light went black, became a vortex, and the images reappeared and began to swirl back inward. The black holes grew denser, and the swirlings thicker and faster to a nauseating, terrifying pitch. As the blackness spread behind the whirlpools of images, it felt as if *all space was being gathered together, pulled in like a net, all points that had been separate now fusing*. (my emphasis; vi.26.12-13)

Óh-T'bee is literally networked space and time in the Glide world. She is the origin of all transit—instantaneously anywhere within her gaze—within the solar system, as well as the repository of all cultural memory, and the time- and scorekeeper of the game itself. Like the Patchwork Girl, Óh-T'bee is all connections, entrances and exits, arrivals and departures to and from the system and she is the agent of movement between past and present. In order for there to be a future, however, she must die—perform a full systems shutdown that is—in order to reconcile contradictory histories and command codes lodged in her memory core.

Califia problematizes history as well. Its three narrators seek to undermine the official histories and narratives that their families have passed down in their quest for gold. As I have already discussed, the novel sets itself up as a journey, with a four-pointed mandala acting as compass throughout the story. But from there the narrative quickly takes off along different information trails. The trails are further divided by the points of view of the three narrators who use different discourses to follow their different paths. The opening connects with the main line, Augusta Summerland's path, which travels to Paradise Home (where Augusta's mother, Violet, lives) to the Windpower headquarters in the desert, where secrets about the gold's location are revealed, and to the 'Exit' from the text. Calvin's path travels via random themes and docudramas. Kaye Beveridge's path traverses Kaye's Legends and Kaye's Stars. Unconnected from these lines, Calvin depicts the maps, star maps and archive that are key components of the text. While as an organizational schematic Calvin's sketch is technically accurate, it is not actually possible to read the text in these linear paths as he indicates. The opening of *Califia* has us join Augusta en route with the phrase, 'There once was an Island called

California where dreams came true...", and traverses several screens that give information on the goals of the narrators and the overarching trajectory of the text. This is a departure point and, following it, every reading is different. The three narrative threads and voices (and a chorus of other people's voices as well), as catalogued by Calvin, keep interrupting each other, intruding into the others' spaces and talking over each other so no hierarchy or teleology is established. This text is a web of connections, Kaye tells us: "This effort to put all of the information together will reveal that no part of the story is an isolated incident, all is a part of the whole...we will unearth forgotten relationships, restore the connections, find the harmony beneath the fragments of song" ("Kaye's Home Page"). In the introduction to the Southern journey, the narrators tell us that they have divided the work and storytelling up between them—with a qualification:

?

> If the material doesn't make sense on its own, Calvin and Kaye attempt to interpret it in docudramas, which are always *speculative reconstructions...* At this writing we are not sure what we will find. Like you, we are following the most promising trail into uncharted territory [my emphasis; "South: To the Reader"].

Rationalizing the material is the work of the archivist or historian, but spinning 'speculative reconstructions' is the work of the novelist, just as the docudramas are explicitly not documentary. And where lies the narrative trajectory when the terrain is uncharted and the centre a hole, an empty space, where treasure once resided? This is anti-historical logic to be sure. Structurally speaking, *Patchwork Girl, Califia* and *Glide* are of course literal subjective linked networks, but they also enact the endless circulation of the multiplicity of narrative voices.

Patchwork Girl, for example, is more than a simple structural joining of body parts; it is a suturing of multiple modalities and modes of speaking. The text has five entry points from the title page: "a graveyard," "a journal," "a quilt," "a story" and "broken accents." Each is prefaced by a different image of the body in pieces called "her cut" where Jackson is clearly toying with the concept of body as cuts of meat. In the same way, within the text, she tells us: "on the photograph of a cow, the classic cuts are sketched out in dotted lines. The cow doesn't know it yet, but it is an assemblage of dinners./ A dotted line demonstrates: even what is discontinuous and in pieces can blaze a trail" ("dotted line"). From that portal and blazed trail, the "graveyard" and "broken accents" sections enter through stone, that is a headstone, and map, that is a phrenological schematic of the brain [Fig. 4.1 phrenology], respectively. These are the sites of Jackson's monster's present tense speaking voice and her present, set in sensory time, is told via the geography of the body and the "body of the text." "A story" is also her first person point of view, but it is dislocated geographically and temporally into her 'past' lives as they interweave with her present identity. "A story" is a number of stories told in a fairly linear fashion as is the section called "A journal," Mary's story of the monster's creation. "A quilt" is quite different. It is at the centre, the crazy quilt of the Patchwork Girl's histories, hauntings and memories, intertexts at the heart of her; it is an interweaving and interlacing of quotations and progenitors of the text. Her text, like her self, is a literal patchwork of a connective tissue framework of sources and interconnections. And, unlike the other parts, *Patchwork Girl*'s crazy quilted documentary is told in the third person by the other voices who inhabit this space. The whole is sandwiched by the "body of the text" on either side, enveloped as it were in the arms of the monster's story, while the "graveyard," "quilt" and "broken accents" interweave with the more linear and stationary "journal" and "story." The fabric, the body and brain are knotted around the textual elements, and the structural elements intertwine with the static nodes like ornamentation in a medieval manuscript.

Thematic spirals of identity and monstrosity reach far beyond the typographic, being sutured into the text as an essential component of the mode of telling, while the monster's voices and senses foreground and interlink the words. As a liminal figure, hers is naturally a threshold existence. She says, "if we imagined the position of a fascinated self, it was because the multiplicity towards which it leans, stretching to the breaking point, is the continuation of another multiplicity that works it and strains it from the inside. In fact, the self is only a threshold, a door between two multiplicities" ("many brains"). And so, like the cosmos, the Patchwork Girl as the contagion of a nomadology is information multiplicity. She is not only the lurch and jump of information in her conglomerate self, but she is a container for the viral information of a legion of disjunctive selves in perpetual circulation. Her selves are doorways to alternate universes that are dislocated in space and time where the subject is a threshold into the larger picture of the whole.

To Gilles Deleuze in *Cinema I*, these linkages are indexical, forming what he calls:

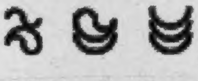
> "skeleton-space" because so much of what is significant seems to be missing… There are the interstitial, absent-middle elements, "missing intermediaries, heterogeneous elements which jump from one to the other, or which interconnect directly. It is no longer an ambient space [of flows] but a vectorial space, a vector-space, with temporal distance. It is no longer the encompassing stroke of a great contour, but the broken stroke of a line of the universe, across the holes." (qtd in Shields 155)

Likewise, *Califia*'s complex user interface divides the text into four journeyings, each of which is a doorway into the narrative. Even though *Califia* can be read in a linear progression through the four sections, the storylines within each section are anything but linear. Navigated by StarMaps, this is a nomadic quest to trace the fluid links and connections between fortune, bloodlines, women and the past and the future. *Califia* is a feminist anti-history of navigation where the nomadic reader steers by dead reckoning through skeletal space-time. Following the seven stars of the big dipper, the reader exits via the solar table into sacred spaces and new lands. An assemblage of narratives, images, documents and prophesies, the text is open-ended and invites the reader to lose herself in a rambling web of the sometimes contradictory pieces comprising the journeys. Augusta's narrative relates the present-day chronology of the grail-like quest to solve the riddles that lead to the legendary treasure, but it also tells the story of her mother's decline into the labyrinthine confusion of Alzheimer's Disease.

Alzheimer's might be seen as a cognitive model for the act of reading *Califia*. Voyaging through time and space where the overloaded short term memory is at tension with the demands of reading the text, *Califia's* wealth challenges us beyond powers of absorption, testing our memory through sheer excess information. The Solar Table designates the text a dance with wheels within wheels, as I discussed in Chapter 2. Of the many journeys, each one splits into three routes with more than 20 true ways and more than 30 so-called paths of wisdom. These sudden changes in narrative direction create a kind of dementia as we are derailed in our reading and thrown back and forth in time. When we traverse space by activating a link, no tangible memory of the travel remains, and the 'back' button takes us backward in the structural organization of the text, not in the narrative. The reader must ramble and be sidetracked in *Califia* because all narrative lines are short and end in mid-air—and yet all are interlinked across time and geography by the constant of the quest for treasure. As Kaye says, "It's all the same thing. Past dreams, future dreams, present dreams" ("Augusta's Path").

The text keeps returning to memories of Violet, even after her death, because she can lead us to the next world if only we can unravel her associations and follow her phantom footprints in sand. Seers, sirens and sibyls were prophets who, with one foot in both worlds, enacted a temporal flux through the power of revisioning the future. Violet is a guide, a silent shaman, who stands on the threshold of the text between past and present, informing Augusta's understanding of the mythic nature of the family obsession and teaching her how to follow in the footsteps of Violet's own associations. Just as the voice of sibylline prophecy disintegrates into nonsense once it is recorded, so Violet's hypertextual voice is transformed into "a mosaic of shattered syllables" when she speaks. *Califia*'s structure is organized on a mosaic model with its shattered syllables being grouped into two archival collections: Kaye's myths, legends and prophecies and Calvin's documentary-driven re-creation of past events. Combined with Augusta's chronological narrative of the present, the three perspectives write a history that tells lost stories and unofficial knowledges. This alternate history is a feminist genealogy or countermemory told through a discordant union of discourses in eight "books": text-based biographical 'snapshots,' letters, government reports, deeds, conversations, journal entries and reconstructed narratives are complemented and rediscovered through photos of people and places, fault lines, a scrap of blue blanket, music, four journey maps and a spinning night sky with its network of guiding stars.

Glide's spinning web that fills its night sky is the site of true interactivity and language acquisition in the text: the lexicon with its accompanying *Collabyrinth*. [Fig. 4.2 Lexicon] In many ways, this text fits no known model for fiction. It is neither hypertext nor freestanding independent game. The first novel, *The Maze Game*, is separate on paper but incomprehensible in essential ways without the lexicon and *Collabyrinth*. The website is divided in nine independent parts: 'story' (chapter 1 of the printed text), 'labyrinth,' 'lexicon,' 'visual language,' 'architecture' (a gallery), 'collabyrinth,' 'music' ("interactive soundscapes"), 'resonance' (reader response) and, the author's commentary, 'obsession.' 'Visual language' is actually a listserve where fans of the text and those interested in visual language can come together to discuss theoretical issues or share their Glide readings and poetry. To play with these glyphs, and to navigate the mazes of its syntax is the real *raison d'être* for the novel itself. In fact, without dancing in these spaces and allowing the oracle to cast our glyphs to make connections with our personal past-present-future, we cannot understand the different sensory and mental states or thought processes of the characters. As we learn the language though, the very walls take on meaning and significance. A text in Glide is a maze, a collection of glyphs. Just as a maze has many different routes that can be taken through it, so meaning in the Glide language is always mnemonic and architectural, is always in movement between renegotiation and interpretation.

The meaning between glyphs morphs where their edges touch, producing ever-shifting margins and centres of meaning. The relationships in the blendings between them are complex: "the user arrangement generates a situation (glyph-pair), a transformation (morphing glyph) and a context (a maze of glyphs seeded by the 3-glyph oracle). The user is offered interpretations (words, images and/or music) and invited to add interpretations to a growing database" ("launch the oracle," Glide Website). The clearest example of how the meaning can alter on the basis of personal interpretation is illustrated by the three glyphs cast in *The Maze Game* after Steve's attack on Wallenda. Concerned for the safety of the Dancemaster, the four dancers, MyrrhMyrrh, Daede, Angle and T'Ling seek guidance from an oracle as to how to best proceed. What they receive is: , strike, caress, receive. MyrrhMyrrh arranges them in a nesting tower, with "*strike* above *caress*… The symmetry of opposites. *Touch* and *strike*, *caress* and *wound*—the pairing was cupped in *receive*. Doubled by the interior *receive*" (iv.29-4). She makes the first translation, reading the entangled glyphs as "*Kiss or insult, I accept it* *all*" (iv.29-4). Daede's interpretation of the same signs is the poem, "*Even a lashing rain is taken by the sea as gentle stroking*" (iv.29-5). Angle's precise mind sees the meaning more pragmatically: "He couldn't disassociate the double wave in *strike* from its meaning on a Chrome maze. Those two empty spaces between were the formation called the loophole… *Love is the only loophole*, he thought. But that sounds pretty matter of fact. Ah! '*Between the wound and the caress, flows the loophole of love*'" (iv.29-5). T'Ling, injured in the attack, rather than making an original interpretation chooses a quote from an ancient text, "St. Leonard of the Tower said, '*There is a crack in everything. That's how the light gets in*'" (iv.29-5). This drive to write metaphor from an entangled state of consciousness as a means of understanding the language is the goal of the Glide website and the legend to understanding *The Maze Game*.

As I outlined in Chapter 2, the novel explores four different 'minds': the island-mind of the Chromes, the gut-mind of the Bods, the sea-mind of the Swash and the lily- or Glide mind—are the means of interpreting the dance of life and language all around the characters. The island-mind is the rational mind, the gut- or body-mind is seat of instinctual emotion, the sea-mind is *chora*, the space of dreams and memory, and the Lily-mind is the Glide mind of connection. In order to perform these mental states in the Dance, memory must be discarded and the Dancer must entirely inhabit the here and now, for, "memory is a hindrance to movement" (i.10-2) in the maze spaces: "To play the game is to forget the game. Fully engaged, it will be life itself" (v.5-13). The Millennium Class begins to break down these barriers between dance types (which is also one measure of the entropy creeping into the game and of why Óh-T'bee is in trouble) and to include a perspective that is broader than the occupation of the present moment. Angle is the first to map an exit (in actuality a hack of the system) because of his Chrome advantage. Chromes have continued the tradition of experimentation that the I-Virus killed in the human spirit, and, unlike the other Dancers, the Chromes' trademark bouncing dance is largely outside of the maze, requiring "[t]hinking out of the maze while trying to land in the holes and fill in the empty spaces" (v.8-7). Angle starts to find a way out of the game when he starts using hybrid thinking, applying the ternary logic of the three minds to his analysis of the MTA:

> it dawned on him that the place he could be looking for an answer—if there was anything to this ternary thinking—was in the excluded middle. The MTA was completely binary—you were either at point A or point B, with no experience of distance in between. The middle was so relentlessly excluded that space itself had collapsed. This led Angle to a reconsideration of the nature of time, the meaning of simultaneity, the persistence of now, an exploration of classical relativity theory, fractal analysis, strings, and knots. By the time he got that far, even the Wallenda

> axiom, 'A net is nothing but a lot of holes tied together by string' was beginning to make sense (v.1-8).

As Dancers, Angle, Daede and T'Ling are the exceptions, of course, in the way they cross boundaries and blend states of consciousness. But even though each type of Dancer stereotypically favours a single mind type, Daede and T'Ling show that it is ultimately the quantum entanglement in the system, the blending of all four minds, where ways of knowing and information that are inaccessible anywhere else become apparent. "Dancing is the only exit" (v.9-2) and access to this transcendent state, enabling passage outside the system, is achieved through an understanding of all modes of the dance and of all types of thinking and bodies. In fact, Óh-T'bee, limited in body as a quantum computer, can only understand the Glide-mind as a form of code, as "access" (iv.23-1) to information. "Glide is not in the game," nor is the game in Glide (iv.23-1); the originally gestural language exists outside of the disembodied Outmind's system and understanding altogether until she eats the Lily of the Wine (that is, swallows the oracle itself [v.22-3]). For the Glides, language is everything, as they are the ones who excel at blending the different minds to achieve a higher state of consciousness; the lily's language is the foundation of their culture, their mode of communication, their cognitive model, their means of resistance, their sensory interface with the world and their death knell. The lily's agenda in passing its knowledge on is to generate a new cognitive evolution to a higher stage of connectivity. To play the game is the only means of acquiring the language and the knowledge contained within. We too must join in the game, dance the maze, in order to evolve to a higher spatio-temporal plane. Through metaphor as a primary interface with the world, the Glides can "overcome the limits of sequential memory and information overload" ("Emergent Forms," "Visual Language" *Glide* Website). Perhaps we can too. Through performing the shape and texture of the language, as interactors we acquire the possibility of becoming skeleton-space, of becoming space-time in motion. To acquire these higher levels of entanglement is always a life and death matter. To dance is to face the reality of our own embodied mortality, to face the blending of the ternary logic of the island-, gut- and sea-minds with the a-logic of the Lily-mind.

Sensory space is what I keep coming back to here because it is not only our way of moving and understanding the languages of the text, but because it is the narrators' modes of engagement with their material too. Cognitive connection is wrought through the dis/connecting gestures of the body in space. The Patchwork Girl describes her multi-dimensional nature as a "dotted line," that which delineates a disconnection "without cleaving apart for good what it distinguishes":

> It is a permeable membrane: some substance necessary to both can pass from one side to the other. It is a potential line, an indication of the way

> out of two dimensions (fold along dotted line): in three dimensions what is separate can be brought together without ripping apart what is already joined, the two sides of a page flow Möbiusly into one another. Pages become tunnels or towers… ("dotted line").

The shuffling and unfolding of the information of the archive of her body in sensory space is enacted across a gap or trajectory of subjecthood that is multiple and present. Subjectivity is the lens and connector through which the spatio-temporal dislocation gets focused and bridged. The gap is outside vision—felt not seen—and always existing on the threshold in between nodes. Like the monster's subjectivities, all knots in the matrix are linked. It is the subject that becomes the focal point though because the new media alters the eye (and body) in the continuously expanding and disorienting shifting of space-time. Subjectivities and perspectives get split in the prism of the new media, fracturing the speaking subject even as it holds the resulting selves all together in a unified (but not single) pattern.

The governing nomadic logic of the quantum feminist text is decentred, wandering and meandering tunnels of the network in Hilbert space that weave above and below the reading surface at the same time. Hilbert space is an experiential realm of quantum states:

> This space is not space in the conventional sense but a space of 'states.' … Although classical-state space is unbounded spatially, it is severely curtailed by the fact that time flows only in a single direction—along a single vector. As the physicist Roger Penrose has put it, "Hilbert space becomes that same universe, with time and every other possible vector flowing in all possible directions" (Brown 27).

Hilbert space is analogous to the potentialities of fractal space—space that maps contingent connections rather than following a linear trajectory—and, like quantum computation, it maps and performs an area that is exponentially larger than the sum total of physical space. It does this by representing every possible contingency within a dynamic system. The distances spanned by navigation in the networked text as a negotiation of fractal space are literally immeasurable and the possible paths and reading sequences are theoretically infinite, like the unfolding space of memory. Like the "spatio-temporal event" that "evokes thought processes not their result" (Kac 186) of a hologram/poem, the monster, Violet and the Dancers, are constantly in flux in this textual enormity of the intensities of fractal space-time. The gap between nodes is literally invisible in the texts, but it is sensible—felt in the body as we leap, and felt cognitively in syntactical disruption and dislocation (Kac 195) like a hiccup and stitch in the fabric of the narratological and mnemonic universes. In the new media, the axes stay stationary, while the planets of narrators spin out orbital webs of fractal subjectivities. These coordinates in space are the realm of analytical geometry, a linking of the "discrete universe of algebra and continuous world of geometry" (Vallias 153). This meeting of fixed coordinates and topological space is interpolated by the three temporal dimensions (by McLuhan's reckoning) to produce quantum entanglement. Entanglement is an interaction—or superposition (Brown 36)—between ontological and syntactical states. Kac argues that it is the "creation of a new syntax" that is transpiring, "exploring mobility, non-linearity, interactivity, fluidity, discontinuity and dynamic behavior [that is] only possible in…space-time" (Kac 188). In this sense, a fractal syntax means the gap "between the verbal and visual dimension of the sign" where both body and language are continually shifting in the sensory realm (Kac 187). These systemic couplings are always illicit and monstrous. As Slattery observes, "[t]he marriage of word and image, is, from the viewpoint of scholarly production, still viewed as miscegenation" (Emergent Forms, "Visual Narrative")

A mingling of boundaries is always suspect, tainted with racist notions of impurity and the controlling fears of taboo. Like Haraway's cyborg, Slattery's half-man, half-machine Chrome set are guilty of monstrosity not solely on account of their penchant for amputation or their hatred of the 'wet' weakness of the human body, but also because they practice emergent thinking (v.8-3). In the same fashion, Jackson's monster cannot understand why she is deemed hideous when each of her parts is independently beautiful. She muses: "Every part of me is human and proportional to the whole. Yet I am a monster—because I am multiple, and because I am mixed, *mestizo*, mongrel" ("why hideous?"). A body at war with itself, she also casts herself in the role of traitor: "I am not the agent of absolute multiplicity any more than I am some redoubtable whole. I am a double agent, messing up both territories. I am muscular and convincing because I am whole; I am devious and an escape artist because I am broken" ("double agent"). Try as she might, even if she wanted to, the Patchwork Girl cannot free herself from her past, present or future, or from their memories and her body's history.

The memory of the body parts' original owners is virulent, infecting the monster in the present with ruptures from other times, other natures and other lives. Now clocking in at 175 years, she is actually much older, being the sum of her parts ("I am") and the organizing centre—or ur-text—for a multiversal and multicursal collectivity of identities. On the subject of body memory, she says:

> And yet I think my parts will remember me, as I remember those they left behind. Judith and the rest will draw together, bound by a hidden figure that traverses them all. I will still act, dispersed as I am, catalyzing group actions, ties, a stitch in my side. My erstwhile foot, returned to its owner, will know the tango and teach its slower fellow, … If all things are called back to their authors, that is. Mary, Mary. I know you want me back, but I

> shall be no more than a heap of letters, sender unknown, when I return.
> The truth is we are all fed on embryos. ("Mementos")

The monster's relationship with her mother is another bastard union, breaking taboos and crossing boundaries. Mary writes the monster, but the monster also writes—or remediates—Mary. They are not only interchangeably and alternately mother and child, creature and creation, artist and art, author and text, but they are also lesbian lovers who defy the incest taboo and who forge a blood bond through a swapping of medallions of skin.

The monster in turn—who lives long after Mary has passed on—suffers "post-partum depression" on leaving her mother for the new world and, in time, becomes her mother, taking Mary into herself, into the complex potentialities of Hilbert space:

> But the loss of a parent is another sort of pregnancy, a reeling back into oneself of the lines of arrival, giving birth backwards. Mary shrank, and I took her in, I became her repository. It bloated me, the responsibility of carrying that life. For a time I couldn't be much more than a shell for it, drawn on by its using my resources more to keep it fat and thriving than for my own affairs. Only with time (it was more than 9 months) would the parent mannequin shrink back down to the size of an embryo. Then I could begin to reabsorb her" ("Aftermath").

This reverse birthing is a rupture of spatio-temporal dimensions, and a sign of monstrosity since the Patchwork Girl cannot bestow life even on herself (although she can re-create, mimic and be Mary in print). Instead, she struggles to maintain a wholeness against the onslaught of her swarm of willful parts. She warns her collective that unification is unsafe: "the restoration of body wholeness for the rest of you will rend me apart" ("hidden figure") For, she maintains that "in front of them all I will come apart paragraph by paragraph. If all quotes remain tethered to their sources by however tenuous filaments, so my parts. … Metaphors will be called home for good. There will be no more likeness, only identity ("hidden figure"). Her identity is a troubled place, at home only in this no man's land, adrift with ghostly voices, contested territories, differing perspectives and gender rifts. Naturally, this is an exploration of the body as text, but it also problematizes notions of the present moment, of authorship and inspiration, as much as it does hybridity. The monster does not just merge one or two boundaries, but instead, being composed of disjunctures and divisions and knotted threads of scar tissue, struggles to blend as many boundaries as possible: "Many monsters, or one: if I am made of some of you, I could be made of more. …if it is hard to tell where I end, I shall continue ("universal"). Time has no meaning where so many lives have been lived and there is no sense of time's arrow's trajectory falling off at an end. Instead intervals of time and quadrants of space become static for her, and it is identity that is mercurial, mutable and in motion. As an embodiment of fractal subjectivities and the networked text, she is a crazy quilt stitched together of the contradictory voices of her parts. All of her part-present-future identities have their own way of making space. Proprioceptively, she is infinite and, like the writer who "summons the space of memory outward" (Joyce, 1995, 171), her narrative self is mapped in the collision of difference between her border states:

> I am a mixed metaphor. Metaphor, meaning something like "bearing across," is itself a fine metaphor for my condition. Every part of me is linked to other territories alien to it but equally mine. Shin bone connected to the thigh bone, thigh bone connected to the hip bone: borrowed parts, annexed territories. I cannot be reduced, my metaphors are not tautologies, yet I am equally present in both poles of a pair… The metaphoric principle is my true skeleton. ("metaphor me")

The fabric of her self is in a perpetual state of deferral, for there are always more stories, connections and memories waiting to be summoned to contradict every place, perspective and position. Jacques Derrida argues that "the borders of any text disappear into 'a differential network, a fabric of traces referring endlessly to something other than itself, to other differential traces': 'Thus the text overruns all the limits assigned to it so far'" (qtd in Joyce, 1995, 161). Like Slattery's Angle and Haraway's cyborg, Jackson's monster fractures all sense of an originary unity and embraces multiplicity, hybridity, and perversity as a way of always already being in a fractal state. The act of leaping both ruptures and acknowledges the ruptures of space-time, enacting quantum entanglement as a means of landing outside of—or beyond—the confines of the textual system.

In *Califia*, we encounter the Spirit Woman of the Milky Way who rises on the third night after her death and, inhabiting a sacred and mnemonic space like the text, visits all of the significant places in her life. Disconnected from temporal dimensions, she wanders east, west and south, unfolding space in her wandering, and returning each time to her starting point. As she heads north, she begs her husband not to follow as she mounts the bridge of the dead to the Milky Way. Like the Patchwork Girl, Angle and Violet, she ruptures the matrix of space-time in an attempt to move outside the system. All she leaves behind are "the shadow of her heels" visible in daylight. In the same way as browsers, we undertake our embodied journey through the old memories of three compass points, and return to our starting point at the end of each voyage. When we make the last turn, some final pieces of the mysteries of the constellations of star lore and family history are revealed to us. Our browsings pull us out of time and space, immersing us in the historical world, but not in chronological engagements. Voyaging back and forth through mnemonic space and a literal family archives, narrative roots in sensory space and place are the mythic elements that hold *Califia* together in the fractured California landscape.

Slattery's *The Maze Game* also seeks means of transcendence for its characters while time and space are fractured in three different ways: by the MTA, by the Oracle and by the I-Virus. As was mentioned earlier, the cyborg Angle manages to hack into the MTA because of his Chrome advantage in the game; his enhanced ocular capabilities give him the facility to view any space or situation from multiple viewpoints. This engagement with the world as a 4-D matrix allows Angle to map the full spaces of the maze, but he has greater problems with mapping multiple temporal dimensions: "Time, to the island-mind at least, was an arrow, an irreversible trajectory," he muses.

> You could orient by time—the past is behind me, the future is up ahead. Whether I am traveling on that arrow, or the arrow moves through me. I cannot turn back. If the trajectory of time had even one more degree of freedom—well, it was impossible to imagine. Moving backward in time, making a past moment into a now, was fraught with paradox. Does this mean we're stuck in our four dimensions? Additional time and space dimensions can't be occupied, even if our minds can conceive them" (iv. 13-5).

Multiple temporal dimensions cannot be occupied in reality or in logical analysis as Angle attempts, but they can be occupied in virtuality, or in mnemonic space. Game space is something that Angle can render mathematically and so he has a much better understanding of it. In the Chrome dance, each space on the board—each glyph—must be occupied and the game ends when all coordinates on the griddle have been visited. This is a form of connection, as Angle describes it to 7T7: "Game ends with virtuality of all points connected to all points, an idealization of the MTA as transport system. In the MTA, the number of transits and the number of places to transit to approaches an apparent limit of ∞. Whatever mockup of 'space' one holds…becomes increasingly 'filled'" (v.7-6). Angle calls this matrix of movement the "Medusa view of [the] universe" (v.7-6) and this writhing of snakes is emulated in the Mass Transit Algorithm. The MTA is like a universe or a "Möbius strip" (v.8-8), and so it cannot be cracked from inside the expanse of Óh-T'bee's Gaze—her surveillance points through the scorecards—that is, the world of the game. The MTA is "a closed system, expandable, perhaps infinitely expandable, but self-contained. Folded into itself" (v.1-5). Through the elimination of the temporal dimension of travel, it permits instantaneous transit between places. By balancing in the three minds as he travels repeatedly between multiple points, Angle is able to appear to be in multiple places simultaneously, to appear to occupy an "[i]nstant otherwhere" (i.1-2). Moving back and forth faster than the human eye can follow, he enacts spatial jumps in microscopic increments of time, thereby bending the MTA to seem to multiply space through the apparent elimination of time.

If the MTA folds space, the oracle folds time (v.9-1). The oracle is an aspect of the Lily that gives glyphs to be read—like a casting of the tarot or a reading of tea leaves—that Óh-T'bee distributes on request. The oracle does not tell the future per se, but it "could be said to connect your intentions at the moment with your overall meaning" (v.2-6). In other words, it speaks to past, present and future simultaneously, and, through this simultaneity, every point in a person's existence is connected to every other point. As with the glyphs in the game or the MTA, every moment in time is occupied by the oracle's vision. This is of the greatest significance just before a Dancer ends her schooling and enters gameplay for real; it is at this time that she receives her 'final focus.' Drinking the Wine of the Lily, a Dancer takes all of the pieces of her self and stands naked in front of the Lily. Distilling the Dancer's gifts to their essence, the Lily "takes them, looks at them all, turns them around, arranges and rearranges them, shapes them, connects them, gives them form and offers…the gift of Focus" (iii.2-5). "The Lily gathers you in and gives you the gift of meaning in return—the meaning of your life, your death: your Dance. It's not necessary to understand the meaning, how it plays out in time, all its implications. Most do not" (iii.2-5), but the Dancer has the power to choose whether or not to accept the Focus, to choose whether or not to follow the path the Lily has chosen for her. Giving the Dancer only an orientation for the future rather than a plan of action, the Lily wine sharpens her into a trajective arrow pointed at an unknown destination (v.2-5). With that information in hand, the Dancer then chooses whether or not to perform the life of the Dance (i.e. to choose death on the griddle) as the way to embrace or reject the Lily's vision. This notion of a future is of course what fascinates the immortal Lifers for whom the Dancers perform and the dance's power holds them transfixed for two millennia.

For Lifers, time has no trajectory, but stands still. The I-Virus, which infected them with immortality, prevents them from growing and changing or from having any sense of a future. Where the MTA provides unlimited space, the I-Virus makes time infinite. While "the Gaze, a feature of the MTA, makes all spaces (uncollapsed by personal perception) local, producing a background collapse effect" (v.7-6), infinite accessibility actually means there is nowhere to go. There is nowhere 'outside,' nowhere that is not local. In the same way, the infinite days of immortality erase all notions of time because the future is only another place—like Jean Baudrillard's 'fixed point' (1988, 39). By flash freezing change, the I-Virus arrests time and, with it, the personal experience of the procession of moments, of time in motion, gradually diminishes: "All time becomes the equivalent of no time. Time nullified. Nothing, therefore, to do" (v.7-7). Purposefulness requires direction and is "dependent on motion toward [a] future" (v.7-7). For Lifers, therefore, all of their energy is devoted to preventing change, to preserving stasis as a way of being; a condition of null time plus null space maintains the status quo for all eternity. The loss of time's arrow also causes Lifer boredom, a catatonic state arising from a sense of purposelessness, and it gave birth to the game. The maze game is the only thing in motion in this universe and therefore it is the only thing that exists outside of Lifer time and space. As Angle sees it: "The mortal Dancer, with fresh purpose, moves fluidly in time. Cycles of action inscribed by Dancer in each maze game: beginning, middle, end. Birth, existence, death" whereas the "Lifer Spec," sits endlessly "transfixed before the spectacle of motion through the space of the maze game. An endless loop"(v.7-7). An endless loop that is an eternal, "unholy trinity," composed of "weapons of mass destruction, I-Virus, and MTA" (v.7-10). The only way to break the cycle of violence is to leap outside of the knotted space-time of the game. The only way to break the cycle of mortal slavery is to find an exit. Angle finds one when he falls into a nothingness with no time and no space: "After the morphing maze swallowed him in all three locations, Angle entered a dark nothingness that could be read as death, except that he was, in some way, aware of nothing. He was nothing, there was nothing to do, and he was doing nothing about it" (v.22-1). This space-time, however, is not outside the system, but inside. As it turns out, Angle has fallen into Óh-T'bee. What is required to exit the system is a hypertextual link that takes the Dancers outside of the space-time of the game, its mindsets and its assumptions. This link is a paradox: "a symbol of 'between-ness' or a threshold condition to another text or webpage; it is the double ambiguity of an exterior and threshold elements made internal to a page" (Shields 151). Both inside and outside, the link is a revolving door, both exit and architectural feature, that must be used for the Dancers to end the game. And so, the browser. As she navigates through the textual spaces of hypermedia driven by her nomadic logic, by wanderlust, the text threatens to become a cathedral of interior/exterior openings, familiar doors and mazes of full space. The knot-body is empty, but it is also full—of openings, asides, digressions and detours—in motion. The knot-body is permeable and dynamic and the text offers only potentialities, orientations and trajectories. The browser is the ground and connection that interlinks the fabric of the text all together into a whole, but she is also the one who makes the fissures explicit. Circulating space in time, all of her parts are in motion, resistant—reluctant—and independently minded. Each driven by its own desire.

iv. Wanderlust

> "If a straight line is the shortest distance between two fated and inevitable points, digressions will lengthen it; and if these digressions become so complex, so tangled and tortuous, so rapid as to hide their own tracks, who knows—perhaps death may not find us, perhaps time will lose its way, and perhaps we ourselves can remain

concealed in our shifting hiding places." – Carlo Levi, Introduction to *Tristram Shandy*

"Nothing in the Universe is fixed." – Albert Einstein

Nudged into motion, the meandering subject in quantum feminist space is a comet in orbit around her own story, spinning off into an uncharted future. According to Paul Virilio, we are no longer beings who inhabit a temporal plane. Instead, in *Open Sky* he argues we have become passive agents who are acted upon—exposed, underexposed, overexposed—like film, and, like film, we are nakedly subject to the effects of light speed. To become active agents, we need to be trajective: to step out into motion, read the path with our feet like the Glides, "morphing meanings" as we walk (Slattery i.10-5), start at a velocity beyond light speed like a tetrion particle, leap without looking, and move with the acceleration of purposeful desire. We must achieve wanderlust. Wanderlust is the desire to be in motion, to move with purpose superliminally at the speed of memory. In contrast to the distances measured in time and space, the "*speed distance*" of memory is a new dimension that "defies all temporal and physical measurements" (Virilio, 1991b, 18). It perhaps has more in common with the shamanic ecstatic technique than with movement in normal space:

> Ecstasy on the plane of archaic religions is a transcendence of or being carried beyond one's individual self, and, as such, the shaman becomes the mediator between the individual human mind and the archetypal, transpersonal realm beyond it, potentially open in dream, vision and trance. Breaking through to the plane of the transpersonal is most often experienced and represented as soul flight, "a trance during which his [the shaman's] soul is believed to leave his body and ascend to the sky or descend to the underworld." Here the shaman experiences something akin to the divine and gains access to a matrix of generative force and power, returning with a supernatural power that he acquires as a result of direct personal experience. (R. Ryan 3)

As a kind of super-charged transcendence, memory is similar to the dynamic potentiality of all contingencies in Hilbert space, like the Patchwork Girl's fractal selves flipping back and forth in time through associational connections, Violet's inhabitation of the immediacy of the past or the dancer's leap from glyph to glyph. In the entangled spaces of these electronic texts, memory becomes more than a kinetic form of remembering, and more than the sum of our spatial and temporal desires; memory becomes a transformance. In Chapter 2, I discussed Bergson's two movements of memory—translation and orientation—and explored how they could only be lived as embodied states. They must be inhabited in the present tense, not in their recollected present moment, and that requires the involvement of the senses. Memory is the performance of embodied codes of information in the here and now. How it gets performed in motion is the wanderlust in the act of browsing. This dynamic desire or hunger to perform information is a situated knowledge of quantum logic—a lived, experienced, and embodied perspective.

Meaning is born of our motion through the text, like the origin of the dancer's movements in harvesting the pollen of the Lily—unique gestures that become the shape of the glyphs as well. [Fig. 4.3 Glyphs] Wallenda describes how alien both the people and their language were to him when he first saw them:

> nearly weightless beings gliding back and forth across the floating fields like pieces on a living, undulating board of some infinite game whose rules were invisible to me. Their moves seemed both haphazard and purposeful. They change direction suddenly for no apparent reason, like dragonflies in mid-air. Their cupped hands stroke over the blossoms in quick, swooping motions like the flight of sparrows, like a benediction. Their paths, which echoed on a larger scale the gestures of their hands, curved and criss-crossed, linked, and doubled back, leaving faint traces as they passed. From those traces, patterns were emerging. Their paths spoke a language in their making, and in the traces left. Like water flowing down a rocky streambed, their patterns never repeated themselves, but were always the same. The pattern was the motion, but the motion had a stillness spoken in its pattern. (i.19-7)

As we move through the stillness and motion of the many changing paths of these texts, we too become dancers who try on differing perspectives, who stop to browse at intervals as our place continually shifts through our motions. Our nomadic desire manifests itself as an ongoing reorientation in fractal dimensions in these immersive spaces. Realigning ourselves with the drifting continents of context, we perform navigational acts in response to our temporal and spatial desires, and, as a result, it is flowing motion rather than location that matters most. Location is in some ways irrelevant in these texts precisely because our perspective in them unfolds; it is constantly changing. Motion with purpose, with desire, is the location where our body performs the story in space, and it is our body that remembers the unfolding history of the journey. Its conceptual knots are the written history—tattoos, inscriptions, impressions—of a browser's physical presence in the text. New realities are born of our fractal perspectives and our memories of our experiences are impressed on us as we pass through.

The continental or tidal drift in these novels is our experience of wanderlust. In the new media, we yearn, we desire, we meander with purpose. Like Glides, we "glide, spin, veer, reverse, still and twing" in response to these texts as we dance our way through (iv.7-3). Nomadic desire and ecstatic transportation is the body in motion in time and space, expressing the buzz-daze powers of attraction and repulsion between one's selves and one's perspectives. Wanderlust is the desire to be other places, to be other people, to always be in a state of flux, to always be in motion wandering with intent. It is also evident in T'Ling and Angle's sexual play—the "vectors of longing, the game of desiring"—that Wallenda overhears in the maze: "like two swallows wheeling in the dusk, arcing away from each other, swinging back, crossing paths at high speeds. He was reminded of a composition in dynamic Glide where two signs curved away from each other, and then, as if drawn by the gravity of desire, slowed, turned" (i.11-3). Our journey like theirs is determined by desire because it is an embodied condition, a sensual and perceptual space that we inhabit, remember and have yet to travel through. Motion is born of longing, curiosity, and hunger. Motion seeks a path in any direction to express the browser's yearning after narrative. This wanderlust is simultaneously a hunger for knowledge, an urge to explore, and a desire for the body of the text. Networked texts are created by the browser, the trajective network being spun by the lusty motions of her navigation in space. Desire propels the subject onward, deeper into the network, forward through the narrative, harnessing anxiety by encouraging the browser to explore still further. Wanderlust knows no trajectory or single-minded direction. Unhinged in time, the browser can move back and forth, but tends to prefer to deviate from the timeline to follow spatially and thematically connected threads.

As nomads, we jump through space from knot to knot, but while our journey is purposeful, it does not follow a linear trajectory either. It is a path of exploration with many stops along the way to investigate the complexity of shorelines and eddying currents, and spiralings back to revisit key places and important moments. As travelers, we jump back and forth in time to track different threads of the story. These are the motions of memory: we make associational linkages, relive this bit, revisit that, conjure up a half-forgotten snippet. For T'Ling, "going back and forth" is "the essential motion of her future," (iv.7-6) and it is ours too. Our twing cannot end any more than hers can. We leap forward and sidle back, thrown by directionless currents at high velocities. Memory is our measure of time and within memory "acceleration and deceleration, or the movement of movement, are the only true dimensions of space, of speed-space" (Virilio, 1991b, 102). Speed is the movement of memory; it is its very gesture. We flash back, we sidestep, we cringe, we circle, we fight our way away, out from the center to drift and woolgather like the Wandering Jew, forever cursed to meander in the mind, making dis/connections. These flights of the mind are voyages through short-term mnemonic space, carrying us without limits through the farthest reaches of the galaxy of the text. We get reeled in by the author's preordained links, netted in the confines of the text, but like smaller fish we can wriggle free of the silken cords and pursue flights of fancy through textual space. There is no speed limit or timeline to memory. We merely think (gesture with a click) ourselves there—what Slattery calls 'blinking' to a new location via the MTA—and there we are. Carried by the tides of memory, the browser follows the link as a navigational indicator, even as we deviate from the straight and narrow. Like authors, we become bats not birds, flying blind by sonar in the dark rather than by sight in the light. Perhaps this is why browsers are so often erroneously dubbed authors or writers of the medium: because, like writers, we must navigate the labyrinth of short-term memory in these textual spaces, rather than the catacombs of long-term memory that readers normally inhabit in the corridors of print (Deleuze 493). Like our inability to catch Samuel Walker's elusive fortune in *Califia* with any possible motion of the mouse, we come to see that the contradictions and ruptures along the journey are paradoxes that remain indecipherable.

With her limited memory, the wandering subject in the new media moves by digressing: via deviance, blind faith and dead reckoning. The mouse click is the gesture of navigation and movement through virtual space. This dis/connection is an expression of wanderlust, desire being realized along our journey through deviance from a linear trajectory. It is a constant motion of sidewinding, sidetracking, sidestepping, sidling movements of deviation from the norm. Never purposeless wandering, our path embodies motion with meaning, with an object in sight. We are in a constant state of deferment in the 'skeleton space' of the archival text, seeking resolution but not wholeness, stillness but not stasis, reconciliation but not closure. We occupy all elements and states of being at once. Both speedy and sedentary, our movements through the links of the form are the record of our passage, leaving pollen trails like tiny Glide feet in virtual air along the vectors of our journey.

Speed plus sedentariness is a trademark of the form (Rasula 7), which makes it impossible to read slowly or to interrupt the flow of the text—paradoxically a chronic stutterer in its own right. The Patchwork Girl, for example, circulates. She is a circulatory system of body parts that ebbs and flows. "The flow," she says, is "the main point" ("flow"), but everything about her is actually in a constant state of interruption. Even her gaze is disembodied and reclaimed like conquered territory. She is myopic and can only see the present page. She yearns to graph herself in space ("hard to track") and she visually situates herself in space in her reading:

> When I open a book I know where I am, which is restful. My reading is spatial and even volumetric I tell myself. I am a third of the way down through a rectangular solid. I am a quarter of the way down the page. I am here on the page, here on this line, here, here, here. But where am I now? I am in a here and present moment that has no history and no expectations for the future. ("this writing")

Like vectored lines of sight, there is a certain linearity to her flow and a simultaneity in her sense of the textual time of her existence. Browsing is a dynamic process (as Wolfgang Iser said of all reading[89]), but the link is a distinctive marker in the catacombs of mnemonic space. The link is a stop in time, a pause, an interval, a moment in the memory of our journey, of where we have been and how we got there. Deleuze and Guattari do not privilege the interruption, but see flow as a binary series of desiring machines that are "linear in every direction—every object presupposes the continuity of a flow, every flow, the fragmentation of an object" (qtd in Joyce, 1995, 240). They suggest that we write ourselves as nomads as a result, so that our "mode of spatialization" consists of being "for space" rather than "in space" (Deleuze and Guattari 482). They advocate resonance and oscillation as means of movement, and see the performance of space in personal intensity as a perpetual state of crossing between smooth and striated environments (Deleuze and Guattari 482). Even as her vision flows, the monster's body soars free in air, in water, disconnected body parts clunking off with a mind of their own. While the Girl exists in all dimensions simultaneously with a limited perspective on present tense subjectivity, at the same time her trajective perspective and places are legion. The subjective linked network is her body and lineage—her donors—and connections to her past(s) and memories. Her dislocation in nomadic space is both body-based and in terms of her literal voyagings. She is not fixed to the earth in the same way, nor does she have a unified body, gender or point of view. She is a literal realization of the speed of entanglement of fractal genders and subjectivities. The Patchwork Girl maintains her "balance not by standing still, but," like T'Ling and the other Glides by "always moving on, circling back, learning the moves of a game that traced a path among the lilies that changed beneath their feet" (i.19-9). The monster is all components of the network in circulation. The monster is a cosmology with all of her satellite body parts being connected openings into the whole.

I have already touched on the attributes of Deleuze and Guattari's smooth and striated spaces, but they can stand some further elucidation as a schematic of the quickness and fluidity of new media texts. Like Manuel Castell's Space of Place and Space of Flows, smooth and striated spaces cannot exist in isolation. Smooth space is directional, nomadic and outside of established systems; striated space is dimensional, sedentary and a part of the machineries of state-ruled measure. Smooth space is infinite, continuous, fluid and heterogeneous, intersected by affects, intensities and vectors, while striated space is finite, gridlocked, fixed and homogeneous, permeated by properties, rules and plotted coordinates in space. However, as distinct as these two kinds of space are, they are inseparable, and it is only through the motion of quantum entanglement—the blending of their systems—that they realize their effects. In isolation, they have no meaning. As a polylogic system, combined they resonate like particles—excited, short-lived versions of more stable selves—revealing otherwise inaccessible qualities through their dissymmetrical callings and wanderings.

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[89] Iser defines reading as a process derived of movement: "As the reader passes through the various perspectives offered by the text and relates the different views and patterns to one another he sets the work in motion, and so sets himself in motion, too" (qtd in Moulthrop "Reading from the Map," 125)

The spatial act of wandering in smooth and striated space is a nomadic impulse, and it is the signature movement of the subjective browser in Pierre Lévy's cosmopedia as well, the site where the cosmos meets the encyclopedia, the place of the knowledge of all things. This is information space, imaginational space, nomadic space, or topological space, and the dynamic systemic of Hilbert space. The cosmopedia, Lévy argues in *Collective Intelligence,* will provide a new interdisciplinary model for organizing information spatially in a manner that incorporates the experiential dimension and "dematerializes the boundaries between different types of knowledge":

> The cosmopedia…dissolves the differences between specializations, as separate zones of power, and leaves behind regions with fluid borders, structured by concepts of variable significance and objects that are continuously being redefined. In place of the fixed organization of knowledge into discrete and hierarchical disciplines (typical of territorial space [i.e. print culture])—or the chaotic fragmentation of information and data (typical of the commodity space [i.e. network culture])—there now exists an unbroken, dynamic topology. (217)

Lévy's collective intelligence is a quest for a more organic system, operating as a network, that incorporates the experiential and sensory dimensions into other forms of knowledge. This is what quantum feminisms also want to achieve, but Lévy's model is different. He integrates a hierarchy into his four kinds of knowledge, valuing the fourth level—knowledge space—as innately superior on account of its holistic nature. While I agree that the network and network culture incorporate topological elements, in no way do I see Lévy's collective intelligence as an 'unbroken' formation. Indeed, what I am arguing for is the molecular and fragmentary nature of the new information systems. Network culture is fractal. It is a space of dynamic complexity, not simplicity, perpetually in circulation. An archive or an encyclopedia is also fragmented and in motion as a "circle of learning" Rasula says (25), so the browser of the archival text by definition both flows and circulates in recombinant states accelerating towards escape velocity. She occupies all elements, all dimensions, and all elemental states simultaneously. Her state of maximum information—the condition of knowing—is a condition of speed, and quickness is also an attribute of intelligence. This tangle of ideas is both information space and entropy—the pattern, form and coherence that are absent when information systems break down or accelerate beyond control.

Speed as a quality of memory (and of temporal desire) jumps from association to association, erasing the space-time of the journey. The quanta of history are encyclopedic entries that we engage in the present moment of textual space as it flashes by. Uniting but never blending the quanta of the text with the interference of all possible histories, the quantum entanglement of the form brings together these conflicting qualities within a single system, a text, and allows them to operate together. Existing on a temporal fissure between where information is stored and the archival spaces of the text where information is accessed, interactivity with the text is limited. By definition, the space of the text as memory space has already happened, has already been saved and we can only retrieve what has been made available to us. We can interact with the text, but ultimately agency is only born as a result of the dynamic nature of our voyagings, as a result of the quickness of our journey. We can only choose our interval, a would-be future (although that is no small thing in and of itself). We have power over where we will go next, but not over what we will find there. Mastery arises from the ways in which we move, and how we map the findings we unearth in our browsings. This paradox is the quantum entanglement: the leap between temporal-spatial dimensions and systems is what gives us perspective. Where Thoth-Hermes-Mercury was the recorder of the gods, he too was a liminal figure, existing at the crossroads between worlds like the wandering browser. He entangled the realities, recording virtuality—in his case speech—in print. Irreconcilable Thoth, the Egyptian god of writing, was a remnant scrap of paradox from the early days of print. As Hermes-Mercury under the Greeks and the Romans, he was also quickness, flitting between worlds, always in a nomadic state where he is unfixed in the here and now. Hermes is a perfect symbol for the spatio-temporal dislocation of the wandering nomad in the virtualities of smooth and striated space. Wanderlust is mercurial, writing itself spatially through the spiraling gestures of motion within the flow of the text. Wanderlust is the means of transformation along the healing journey. Memory and trauma are defused and rendered harmless over the expanse of revisitations during the voyage as they are reintegrated into all the facets of experience, the text and ourselves. Mercury is the fluidity of the desiring subject in her natural state. The browser is all flow in perpetual motion, in process, mapping her journey as she goes.

The *narrator*'s journeys are frozen in the ice of the eternal present moment of their own telling. Conversely, our journeys as *browsers* are dynamic, fluid in the present tense of experience. For us, the textual voyage is alive and kinetic, fractal and in flux, birthed as we travel through its fullness. We get infected by the lust for belonging, gold and understanding respectively in *Patchwork Girl, Califia* and *The Maze Game,* but mostly we lust for a paradigm in these texts. We hunt for threads, connections, and clues. We hunt to unravel the key knots in the narratological fabric, to find the legend to understand the map of the text as a whole. We yearn to chart these spaces and this desire to map is a mnemonic impulse, for, there is no need to map if you have no intention of returning. This mnemonic journey, therefore, is both a cartographic and an encyclopedic one. The electronic text is a map of a map—Erik Davis calls the matrix of cyberspace a "metamap" (264)—but this map is also literally the territory in cyberspace (Davis 192)[90]. It is a cartographic space with no dimensions, only vectors (Shields 159). Navigation is an act of writing our corporeality in these spaces and it is a process—or a history—that gets mapped by the senses on the body. The browser body desires to document the history of its voyagings spatially in smooth space, while the mind yearns to quantify, categorize, gridlock and classify each component in striated space. The only way we can retain both kinds of knowing in our memory though (because we engage with it in the short-lived short-term in these texts) is through the use of mnemonic devices that use images to map architectural space. In "Artificial Memory: Mnemonic Writing in the New

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[90] American new media artist Lisa Jevbratt creates just such a literal, temporal map in her piece *1:1*. Exploring all possible Internet Protocol addresses (from 0.0.0.0. to 255.255.255.255), her work offers up moments of the internet at a real time scale. In the "Prologue," Jan Ekenberg likens this to a snapshot and views the work as a "collapse between the map and the interface" where the "interface becomes not only the map, but the environment itself" (http://cadre.sjsu.edu/jevbratt/c5/onetoone/jan.html). Go to http://c5corp.com/1to1/index.html to see the text. In another work, Jevbratt's *The Stillman Projects*, based on Paul Auster's novel, *City of Glass,* one character deciphers the random patterns of data generated by Stillman's wanderings in New York and overlays them on a map of New York City. In an interview, Jevbratt explained her approach to rendering information aesthetics cartographically:

> While the physical space of New York City has been thoroughly mapped, there isn't just one way of mapping the networked space of the Web. I see the collection and interpretation of the data generated by people's navigation as an attempt to create the map that could be used to decode that data; in other words, the map that is created is the map that could be used to better understand the map that is created. Maybe we have to use recursive reasoning to begin to grasp the concept of networked space. (The importance of recursive loops for computing cannot be overestimated.) To be more specific, I think seeing clusters of pages forming and pondering the relationships among those pages is an interesting way of using the map ("Interview: Lisa Jevbratt").

Media", Tim McLaughlin identifies three memory aids of graphic language in hypertext: architecture with the floorplan, cartography with the map, and photography with the photograph. Respectively, these tools depict the structure, the place and the scene of mnemonic space, but within that even those categories overlap and merge:

> Yet these boundaries are largely arbitrary and one space has a tendency to become another. A map is also a blueprint of the area it shows, and a blueprint is produced by what is essentially a photographic process. A photograph, when it is a portrait, also maps a facial structure onto the human landscape. [An]...advantage of the electronic medium is that it allows these spatial representations to be written through. The text may be re-called by pointing at an area on the map, the blueprint, or the photograph. Hence a multiplicity of pages exists behind every image—these are the aphoristic "thousand words" that each picture is worth. (McLaughlin, "Artificial Memory").

McLaughlin's three forms of graphic writing record on the page of the body, and produce the conceptual knots that encrypt the journey for us so that we can recall and decipher it later.

In the present moment, we feel the effects of the journey, but it is only in retrospect that we decipher and digest them. Perspective is not truly possible in the present, being comprehended as it is at a temporal distance in relation to other points in space. The Patchwork Girl, caught in such an eternal moment, sees this clearly:

> The present moment is furiously small, a slot, a notch, a footprint, and on either side of it is a seethe of possibility, the dissolve of alphabets and of me. I do not know how I proceed... Or even if I proceed, because each present is all I have, that and the pasts I collect like snapshots in accordion-pleated plastic sleeves. ("a slot, a notch")

Eduardo Kac defines this perceived time in opposition to subjective time, the former being present in electronic spaces and the latter being the temporal effect of printed texts. Perhaps the archival text is actually creating a new kind of time, a perceptual, sensory time written in knots on the body: the temporal realization once removed of living in the body in the moment. There is evidence of this in the effects of the dance on time-based perceptions in *The Maze Game.* For the first few centuries of the game no Player ever beat a Glide. Encrypted in the language of the lily, it was too easy for the rational mind to lose itself in the maze of meanings rather than find a path to victory. The Glide game poses exceptional challenges precisely because it alters perceptions of space and time:

> when you were in the middle of the game, the unpredictable changes in pace, from swift, shifting trajectories to inching along almost imperceptibly, to the loop or the full stop completely messed with your

> sense of time and space. The discipline of paying attention for long stretches when nothing was happening—because that nothing could suddenly turn into dizzying action—was perhaps the most difficult of all (i.24-5).

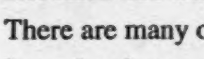
Through tampering with the borderline between perpetual motion and stillness, the Glide-mind alters the rhythm of simultaneity and synchronicity between Player and Dancer:

> When did the Glide die? No one could agree… Playing the tapes back later showed nothing of significance. No angle showed quite the same thing, of course, and nothing was clarified… Whatever had happened, it happened in perfect coordination between Player and Dancer, completely spontaneous (i.24-6).

The temporal desire of the archival text, like the dance, "undermine[s] fixed states" and "create[s] an oscillation" (Kac 190) between the temporal and the spatial, the verbal and the visual, and the body and the senses by slowing time down so we feel the individual sensations in the body, so we feel Guyer's buzz-daze state in our bones. Maps are the mnemonic record of our resonant dance through the oscillating spaces of the text. We perform the mnemonic space of the text, render it active by the process of quantum entanglement between smooth and striated spaces. That is the rupture, the point at which memory is dragged into our consciousness in the present tense space across the spatio-temporal divide.

In the Art of Memory, the space-time that a practitioner travels through is architecturally structured. By navigating the memory spaces of the electronic text, we also re/experience or re/live memories (and what we have forgotten), re-embodying them in our journey. The nodes of the text, the textual moments that we visit in our voyaging are memorable moments, notable moments, knots of tension that must be re-seen and re-experienced to be resolved or unraveled. Navigation is therefore an act of memory, an act of remembering, and browsing becomes an act of healing. The anxiety we feel about the apparent enormity of the unread and uncharted regions—frantically clicking to find unseen areas all at once—is a result of the unmapped nature of the form, the fluidity that breeds a restlessness and desire for motion that is not present in the printed book. As the urge to map the complex length and breadth of an electronic text's continents manifests itself as wanderlust, the map becomes a guide for a revalidation and revisitation of old (intratextual) memories, mimicking the process of healing from trauma. It is a means to recreate an experience, to delve deeper, to explore further. The Patchwork Girl sees her recombinant selves diagrammatically like cuts of meat. Her repressed memories—her past lives—have their own voices and speak outside of time and space. Spatially they inhabit the graveyard of her body; temporally they continue to remain active (outside) in the present tense. She, however, is in motion and they are fixed in time and space (more or less—her body parts have a tendency to wander and her Tourette's Syndrome has a tendency to commandeer her tongue.) This is a centrifugal force of sorts that threatens to tear her apart if she does not strike a balance with all of the donors' wishes and wills in equal and opposite directions and times. This is a fractal world where each part has a role and a mind of its own. The text is also in circulation within the wills and wishes of its five parts. Their fractal dimensions within each section and disparate desires without bring together multiple narrators, genres, theorists and voices. If knotted subjectivity is the bridge across the gap of spatio-temporal dislocation, then the senses and the body are the means by which this choric space-time is felt, spoken, danced and experienced. Existing outside language and invisible to the eyes, the spatio-temporal gap is the realm of fractal subjectivities and genders where all speaking subjects are (theoretically) possible.

Spanning voices and familial generations, *Califia*'s narrators have as a legacy a collection of (sometimes contradictory) historical maps, archived in Calvin's kit bag, that are essentially snapshots of the location of the stash of gold in different historical time periods, albeit unreadable until their encryption code is broken, and accessible only in virtuality. The real territories the maps depict no longer exist, having been devastated, relocated and written over like memories in the intervening decades by earthquakes. There are many other kinds of mapping that happen in the text too. The wealth of legends, photos, and documents provide clues, acting as keys to decode the maps, and continue to fuel the impetus for searching for the lost treasure. The blue blanket eventually turns out to be the most important map of all, disguising its secrets like its purpose in seemingly decorative embroidery. *Califia,* the narrative itself, is also described as "a virtual treasure map" ("Roadhead") and Augusta, Kaye and Calvin encourage the browser to follow her wanderlust: "Our hope is that, as you choose your way among the paths, you will discover more than we know. In the end, your created stories will determine the real location of the treasure of Califia" ("Roadhead"). Like the early California explorers, we too must use their navigational methods: the solar tables, celestial navigation and dead reckoning. Like the Whirling Man constellation in the night sky, the patterns of the quest remain the same throughout the text, but the finer details are continually shifting in relation to the whole, haunting the search as it were both by night and by day ("Starmap").

Less concerned with time, Óh-T'bee is obsessed with trying to map the meaning of her oracle, the three missing glyphs from the Declaration of Independence maze  or body, play, body. This involves deciding, among other things, whether she is a Player or not. Her lack of objectivity—as administrator of the game her role is to even the odds—is a loophole and one of the irreconcilables that starts her twing, a painful, physical and psychic oscillation in space. She originally had to choose the number of glyphs that would make up a maze when the first maze was selected. She continues to administrate the rules set down by the Glides as their Declaration of Independence, and write down each maze for the Lily. As a result, Óh-T'bee's fate becomes entangled, mapped and intertwingled with the game's own. In order to become a Player, she must map her allegiance and choose between Steve and Wallenda, between her maker and the Keeper of the Game:

> Óh-T'bee studied it [the Declaration of Independence maze] from all viewpoints, all at once and concluded: whether I'm in it, am it, made it, gaze it, all of the above, none of the above, this maze has had a strategy from the start.
>
> *The way to survive is to die.*
>
> It even has a first move—*declare your independence* (v.24-7-8).

By choosing to map the meaning of her oracle, Óh-T'bee must choose to dance and die, that is to shutdown, in order to eradicate the contradictions tearing her apart in her independent agreements with Steve and Wally. "Oracular self-reference," she realizes, is "the mother of loopholes" and that allows her to sidestep her programming and determine her own fate[91]:

> The process of trying to discover whether the process of interpretation ended combined with the interpreting process itself comes suddenly to a halt when the nature of the process itself is questioned. Óh-T'bee Panoptica, gazing every story and every intertwinglement from everywhere all at once can't possibly have *a* story, *a* focus, *a* meaning. Unless she has a life and a death all her very own. A Dance, as Angle said. (v.24-4)

Mapping her life story and her independence is a narrative process that defines her situation visually and conceptually from the perspective of her gazepoints across the complexity of her space-time topology. All of these maps are mnemonic devices that, like key nodes in a life or a networked text, invite us to visit these territories again and again. It is the same journey that we make on a path to healing. Over and over like Óh-T'bee, we return to the same ground, to originary moments, trying to map them, articulate them, let go of them. Since the mnemonic journey is also this cartographic, encyclopedic one, we feel compelled to document everything, to map every inch, to explore all of it in all of its complexity. It is a mnemonic system for recreating the cosmos of the text in our minds.

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[91] It was actually Steve's addition of self-reflexive recursivity—the twing—to Óh-T'bee's program that made sentience an emergent property of her operating system in the first place (vi.11-1). Hence, Steve is her 'creator.'

Our body is our interface with the textual world and the spatial map of the map of the text is the literal interface. In other words, our body maps the map that is our textual body. A map is a document of the mind in process; it is also a memory and an alternative form of historical telling. The nomad is always already a cartographer; her stories are maps and she maps her memories in space with her body. Drawn by the act of wandering, a map exists outside the system in *conceptual space* as a union of nomadic concerns with place and perspective. Her challenge is always to situate herself, to plot her coordinates in relation to the whole, even as she is always in motion. This is a star chart: a snapshot of a system that is in flux, in the process of perpetually remapping itself. Like any other quantum system, however, it cannot be copied or reproduced. Any map exists only in the present moment as a snapshot because the system as a whole is always in an organic state of change: "there exists no physical process that can produce *perfect* copies of a system that is initially in an *unknown* quantum state. This so-called *no-cloning* theorem…is an immediate consequence of the linearity of quantum mechanics" (Cerf 218). We can only, therefore, represent our impressions through the metaphor of a map. Because our map is written on and by our bodies, we have fractal subjectivities to accommodate our changing perspectives where the fixed points that we keep returning to are sites of trauma. Like moments of trauma, knots are fixed coordinates on the intradimensional map of memory. We perform those coordinates, our stories, in air with our bodies, resonating in response to the stories and traumatic moments in the text where motion and speed are the dynamics and constants in its fixed system. Memories and traumas are defused and rendered harmless en route, being ultimately reintegrated into all the facets of our experience, the text and ourselves. The desiring subject in her natural state is as fluid as mercury. She is all flow in perpetual motion, in process, inhabiting all multiverses simultaneously. The meanderings of memory are key to this whole process because these texts emulate the cognitive functioning of the mind. The archival text is therefore more purely an immersive state than other kinds of reading because we literally immerse ourselves in mnemonic space. It is quicksilver thinking from the mercurial depths of consciousness.

We, as trajective browsers, lust after these fragments of memory encoded as the knots or nodes in the text and are perpetually propelled forward by the desire for healing, understanding, and resolution. Mnemonic voyaging is the wanderlust of the deviant seeking solace for the irreconcilable memories the text carries within. We browse like Violet, entranced by the past while inhabiting the present space of our recollection. Wandering is a kind of flight of the mind, a retreat into more comforting times or an escape or avoidance of present unpleasantness. Memory can be a retreat into safety and nostalgia, but it also can be the journey inward along the road of the process of healing. The temporal dimension is a metabody acquired through the process of moving through and performing space, and through which we gain an awareness of how and where and why we move. Movement in the space and time of the new media is an act of transformation. To move is to be alive, to be present, to reject nostalgia in favour of life, to refuse to look anywhere but along a forward trajectory. To be in motion is not to deny memory but to embrace it as a part of the journey and to use the speed of it as an escape conduit, to use memory as an emergency chute to slide out into a new future. The browser in motion rejects memory not to avoid, but to use it to change the future (rather than inhabiting vacuum-sealed nostalgic rooms). This is a different kind of history for a different kind of time. History and memories have already been changed by revisiting them. They are rewritten or re-envisioned by the resonance of our movement as our perspective on them shifts with each return.

Resonance is a process that writes itself like turbulence on the body as the body is written by the memory of its movement in space. As the vibrating living record of the song of the journey and the transformation, resonance is the first step towards the rupture of space-time where we are transported by our desire and quest to another space and time, to another dimension or a sensual and perceptual space. This is not disembodiment but re-embodiment—meta-embodiment. We inhabit our bodies differently when we are out of phase, oscillating in the turbulence of intervallic or mnemonic space, that space where the textual body is written as contextual knot. The ways of moving in virtual space are directed and mapped by the knots that span spatio-temporal rifts. Without movement, we cannot cross the space-time divide. Without movement, we cannot read the work. Movement is engagement, agency, an act of memory, and a mnemonic gesture in these texts, but it is never linear trajectory. It is the irregular spiralings and surprise encounters of Sanford's turbulence. It is the impulse to explore and therefore to map, to record, and to structure. That which resonates is the memory of our movement in space-time, that turbulence that Gilles Deleuze says is a "spiral" following "a fractal mode" where successive turbulences unfold between each other (1993, 17). The only fixed points in the turbulent system are conceptual knots that act as mnemonic flags. Memory is the motion of the mind in space-time where we hear, feel and experience the resonance of the speedy snapshots of Hilbert space, and where the knots are intradimensional, adrift like continents, floating through the divisions of space-time. In the same way, Marshall and Eric McLuhan argue for the intradimensional entanglement of audile and tactile spaces. To their minds, each sense occupies its own distinctive space separated by intervals: "Intervals…are resonant and not static. Resonance is the mode of acoustic space; tactility is the space of the significant bounding line, of pressure, and of the interval" (6). In fact, resonance is such an important idea in much of McLuhan's thinking that it could be argued that he sees resonance as an entirely new and distinct dimension of hyperspace—a complex, dynamic entangled dimension.

Entangled, the parameters of mnemonic space become audible when multiple systems and dimensions collide. This collision is a merging of two different kinds of desires: one spatial and one temporal. The synchronous vibration of the body in space and in time writes mnemonic knots that transcend those systems. It bridges the gaps of mnemonic vulnerability in the forgetfulness inherent to the short-term negotiations of the form. The record of the performance of the resonant body excited by its motion on a quest for desire is an oscillation of the body in space-time that produces a disruption of the narrative structure. It also should be noted that this is important not just for narrative, but the concept of discontinuity was also a major breakthrough for physicists when they realized that the spatial absorbed the temporal, for "chronological simultaneity was discovered as implicit in the discontinuous interface of space and time" (McLuhan and McLuhan 46). Sensory time is resonant as the link beckons and calls us, tempting us to take the leap across the spatio-temporal divide. Static space cannot break the space-time bridge, but the phase shift of resonance—Guyer's buzz-daze state—gives us sight across the rift of the sensory dimensions, a disorienting experience akin to sim sickness or vertigo. This is the domain of the strange attractor and intervallic space. The phase shift makes evident the link between our desires and our senses. It embodies us as it re-embodies us, making us aware of ourselves as resonant beings. It gives us a context for our desire. Rapture, that disruption that results in our transportation by desire, is realized as the wanderlust that drives us to keep moving onward. Memory-wise, it writes a record of our process of transformation along the journey.

Temporal desire writes itself through movement, direction, speed, deviance and mnemonic knots on the body, as I have previously stated. Spatial desire is performed through maps and mapping, resonance, oscillation, loopholes, and rupture. Combined, these elements birth wanderlust: the entanglement of interactivity, transcendence, rapture and transformation. Our journey writes itself rapturously on our bodies. Our motion in space traces patterns on our skin, fingers that tease us forward inviting us to act on our lust, to enact our desire. We perform space in real time. We write our bodies through our movements through the cosmos of these texts as we create the text and as it writes itself on us. Like life, the text impresses us with the conceptual knots that we experience in our intradimensional voyagings. It is the intradimensional twing that shows us the way out of the system. Angle's observation, "No twing, no spring" (v.7-13) is another way of saying if you do not play, you do not win. Resonance requires some further explanation as it has a number of qualities. In music, it is the continuation of a sound by way of an echo or vibrating synchronicity. In mechanics, resonance is an object or a system that oscillates in sympathy with a frequency close to its own. In chemistry, resonance is defined as a binary molecular property, and, in physics, resonance is the lifespan of an elementary particle oscillating at a higher frequency than its usual, more stable state. A bridging of harmony and vibration, organic structure and cosmology, resonance slows time down, makes us aware of its fleeting nature, and allows us to step into the undulations of sensory time, to feel the flashing, lightning-fast sensations that normally get lost in the press of present moments and allow us to focus on the body as a pulse in the dark.

Like resonance, oscillation too is a vibrating motion that, I have noted, superstrings use as a mnemonic recorder at the heart of all particles. Repetition, oscillation, spiraling and floating are Nicole Brossard's four movements of narrative.[92] Brossard argues that feminism makes space for the 'body politic' in fiction (91) and, in the same way, the dynamic nature of narrative makes room for feminist content and discourse in four ways: " a) oscillating movement, which manifests a certain ambivalence; b) repetitive movement, as if to exorcise the patriarchal voice; c) spiraling movement, which serves to gradually conquer the territory concerned and d) floating movement, where thought is suspended over the void" (Brossard 92). Motion in narrative is integral because narrative is a *process* not a product, because narrative is a way of transforming reality. We must move through it in order to experience it (like the paintings of Cubism, which make sense only if our visual perceptions is in a constant state of movement) and in order to be moved by it. This excitation, as of resonant particles, is even embodied in the word 'to excite' derived from the root 'to move,' just as the marker of difference in the new media is the phase shift—the intradimensional movement—in space-time. The act of storytelling is also a dynamic process, as is bricolage. Bricolage, like narrative, transforms (in this case visual) reality through its gestures, severing, collage, montage and discontinuity and in this sense has distinct parallels with the browser's movement through an electronic text. This is the quantum concept of entanglement where the inaccessible is made accessible when systems collide. In the merging of the desires—or the lusts—of the two systems, that which did not exist in either singly is born. Motion crosses the spatio-temporal divide through the act of rupture. Rupture, like bricolage, is an opening or a window from where we gain perspective on our interactions with space-time. We cannot see space-time or the rupture as we move through it (as nineteenth century German mathematician Bernhard Riemann demonstrates in his metaphor of interdimensional travel; see Tolva's "*Ut Pictura Hyperpoesis*" for an in-depth explication of "Riemann's cut"), but in retrospect, in the written record retained on the body, the dislocation of our movement from location to location becomes clear, evident, perceptible and audible. Rupture is perceptible and sensible only in retrospect or in mnemonic space.

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[92] As I already explored in Chapter Two, Lev Manovich's definition of the seven modes of dataspace navigation as "linking, searching, sequentialization, hierarchy, similarity, mapping, guides and agents" (272) are also forms of movement. The acts of comparing, sorting or organizing could also be read as formative narratives or foundational frameworks for storytelling. Similarly, for Henri Bergson, memory consists of four movements. They are translation, orientation, dynamic movement and mechanical movement.

With the gesture of echoes, space and time call to each other across the divide where rupture becomes rapture, "ecstatic delight, mental transport. Great pleasure or enthusiasm or the expression of it" (OED). Rapture is also the "act of transporting a person from one place to another" (OED) through ecstasy. When we are enraptured, our wanderlust is made spiritual and corporeal; it becomes simultaneously embodied and transcendent, breaking the boundaries of space-time. Our resonant body hums in response to the text so that it might seem that the corporeal is made musical, even as the harmonies of heavenly bodies are made flesh in the entanglements of the music of the spheres—and not just musical, mechanical as well. The whole system/text is subjected to a resonant force similar to its own when space and time intersect. The alchemical explosion of the body in space-time rupturing the dimensions is essential to movement and sensory time is a prolongation of our normal state through reflection or synchronous vibration. Our movement is to use links as an invitation or beckoning across the divide of the spatio-temporal rift. They ignite our desire to move forward. Our narratological lust is in flux, constantly changing, with wanderlust becoming a means of transformation—and not simply transportation—along the healing journey. Rapture, therefore, unites space and time and the two desires become entangled.

Wanderlust in Glide is not just the dance, but a form of speaking as well. It is the language of the Lily, the language of pollination, and a secret code used by slaves. It is also the language of transportation and transformation (or entanglement) as well. The MTA collapses (time and) space. It is a folding of space-time, a compression of dimensions. It brings all places together all at once, folding space into an instantaneous elsewhere. The MTA gives simultaneity to space, but it does not take one backwards or forwards in time. What is does do is embody disorientation—making perspective, time and place stand still—meaning there is literally no way to orient one's self. This is because Óh-T'bee does not have access to the Lily- or Glide-mind, the deepest mind, the mind that embodies intuitive movement free from logic within it. The Lily-mind is a kind of understanding that blends the island-, gut- and sea-minds. The essence to mental movement in it (and in the new media) is the "twing," the built-in contradictions of being in two places at the same time where the overlap of past-present-future resonates or oscillates for the Dancer. It is multidimensional motion by the browser on her journey as well that births fractal subjectivities. Renaissance art used a single focal point as a means of depicting perspective, as was discussed in Chapter 2, ultimately thereby fixing a moment in time and space, and negating movement.

This is why the new media do not use perspective as an orientation, but privilege instead disorientation. The science of the body in motion in the spaces of the text creates fractal perspectives, which, by definition, cannot be fixed except in time, that is in the real time of the present moment This shift in perspective to multiple gazepoints, as Slattery calls them, is trademark of the paradigm shift of the information revolution itself, altering not just how we see, but transforming our vision and the nature of our gaze into dynamic abilities. Wanderlust is a component of the reading experience, but it is also embodied in the written text. There is a merging of the browser and the narrator(s)' points of view and a mapping of the coordinates where our desire collides with the narrators' desires in the telling.

As a Great Reversal in the reading experience this is an important concept not just for browsing, but for *The Maze Game* as well. Wally performed the Great Reversal when he danced and died to celebrate life (the game, born as a refusal of slavery, makes its motto 'the way to survive is to die'). Daede does too. As the embodiment of a permanent twing in his scar, he truly becomes a Dancer when he accepts his final focus, accepts that he is not to be a Dancer but instead to be the greatest Player the game has ever known. Óh-T'bee must learn to move in order to acknowledge her position as a Player. As long as she remains everywhere all at once, a tangled web that is connected and connector to all her citizens, she cannot implement movement in her agenda. Surveillance becomes her Gaze as a browser, but her Gaze is *without movement* because she is without body. Totally vision dependent, she is only as mobile as her scorecards, and must remain fixed in static opposition to the blind, multidirectional movement of the Glides. *The Glide language is movement* (i.16-6). It is a language of gesture that is spoken in the body. The language of the Lily can also transport one to the space-time of the Lily-mind. More than an embodied state, it is a deep trance, a place and state of mediation and meditation, a meditation that merges place and state, and place and perspective. The gestural dance born as secret code becomes the language of resistance to Joreen's slavery. The Maze Game gives the original slaves a reason to live as Dancers, and a language of defiance to speak against their diseased oppressors.

Wanderlust is the coming together of these temporal and spatial desires. Where space and time meet entanglement—rapture—is born. Entanglement is the mingling of dimensions as a result of the transformation of the healing journey. The browser's quest in space and time is an act of desire, and desire in this context is movement, direction, speed, mapping, rupture and memory storage (i.e. mapping in both space and time). The browser's quest is for the disorientation of loopholes that will transport her through time and space, and it is only the connection across the dimensions that births rapture, the transportation by desire into a transformation. Entanglement is the process where transformation becomes possible, where rapture ignites beyond rupture, birthing transformance. The time split is just as important as the spatial split, but both might be overlooked given the new emphasis on the present tense that Virilio explores in *Open Sky*. Virilio says, "For Einstein, the present is already 'the centre of time'; the past of the original **big bang** is not, and scientifically cannot be that *old* centre. The true centre is always *new*, the centre is perpetual, or to put it even more precisely, 'the present' is an **eternal present**" (original emphasis; 1997, 136). Under such a system the centre of time, since it is always in motion at a high velocity, is "light or, more exactly, the speed of information-carrying waves" (1997, 136). Space-time, therefore, has no origin or centre (and cannot exist on a continuum) because it only exists in the present tense (1997, 37). What the "*perpetual present*" does have is duration, and the new media accordingly privilege the present, devalue memory, and promote the dizziness of speed as the means of engagement with information, that sensual and perceptual "*hypercentre of time*" (Virilio, 1997, 137): the information space of disorientation. The temporal split can only exist within a ruptured spatial dimension as well. They must co-exist in a mutual state of entanglement.

Similarly, the browser and the narrator wander in space and time creating disorienting ruptures through the choices they make. In *Califia*, there is the spiritual journey outside of normal space-time, and the many encyclopedia disjunctures of image, text, modes of discourse, music, animation, etc. In *The Maze Game*, there is Óh-T'bee, the MTA, the I-Virus and loopholes. Angle, who is out of phase on account of his cyborg implants, keeps literally falling through loopholes in the maze. Óh-T'bee must come to understand the loophole in her programming—that love is the only loophole[93]—in order to integrate the multidimensional irreconcilables into her programming that are only understandable as a result of immersion in the Glide-mind, a hypercentre of sensual and perceptual space. In *Patchwork Girl*, the monster travels by more conventional means, and, like us, as a navigator through the text of her body maps a palimpsest of mnemonic space. The Dancer in the Glide maze moves through the game spaces with her body, but it is the folding of time via the I-Virus, the folding of space through the MTA and the exit (the way out of the maze through loopholes, loops in logic via the Glide-mind) into nothingness that are really of interest in how movement happens in the text and in how space-time gets ruptured.

Movement or our governing nomadic logic in these texts, the undulation in the form, is a very important part of how we understand the works. The tension between floating and diving is a constant. Perhaps, as Slattery designates them, they are different kinds of minds, different kinds of logics. Nomadic logic is similar to Virilio's trajectivity, the space between objectivity and subjectivity given to motion. Nomadic logic is the logic of wandering or, more exactly, of wanderlust. It is not illogical so much as a-logical: it is a logic of multiplicity, of many logics, but never all logics because by definition it is logic born of the act of choosing. Choosing a path. The logic of wanderlust has direction, but no set trajectory; it has trajectories but no set targets. We only have control over the leap not over where we land, and our logic in these spaces is determined by desire. Our logic is our disorienting wanderlust born of our craving for continuity and so we hunt down divergent threads to find connections. The goal of the nomad is to map the territory in this sensory space. The whole space cannot be seen or visualized, only conceptualized and understood in terms of metaphor, which means we must inhabit the Glide-mind, and, in doing so, let our bodies do the work for this part, carrying us forward through a leap of faith into the dark. Just as the Girl is all dimensions, so her perspective and place are legion. She is everywhere and everyone all at once. Her body is in nomadic flux, being torn apart limb from limb by nomadic logic and desire. Exploiting disruption as an aesthetic (Tolva), Jackson builds a multiple subject. Similarly, the nomad is unhinged from space-time, operating always in the present tense, capable of moving in any direction all at once, inhabiting all dimensions simultaneously (like the knot). A nomadology is mnemonic flux: the interplay, the space between memory and forgetting, smooth and striated memory, continental drift. These nomadologies embody the act of wanderlust across the fissures of multiple dimensions.

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[93] Óh-T'bee's kill switch, which she cannot activate herself, is those three little words: 'I love you.'

Jackson's fissured creature observes that "scars not only mark a cut but commemorate a joining" ("cut") as well. They indicate a coming together across the dimensions, that fold she refers to along the dotted line. The folding of space for instantaneous connection seems to suggest that there is no space between or that space is empty. But, just because we cannot see it in the text, it in no way is less important for its invisibility. Hayles' split temporalities (discussed in Chapter 1) raise the potentialities for multiple readings, gaps where all possible routes are written in the spaces of choices not taken. The gaps in these texts occupy sensual and perceptual space, and, as we leap, we get a glimpse of their edges. This glimpse makes us aware of the boundaries, borders and frames of the form. It makes us aware, for example, of the Patchwork Girl's parts and personae. It makes us aware of the intersections of families, narrators and different kinds of information in *Califia*. It provides a pathway for meaning in Glide. The gaps are not a part of the fabric of the text; they are the text itself, the architecture of the space of browsing. Hyperlinking and gestures of navigation in space-time undermine temporal sequence and privilege dislocation, disruption and disorientation rather than location, continuity and orientation. "Future is out of time. Future is space," says Michael Joyce

(Joyce, 1995, 123), and the spaces between the textual nodes are key, for, it is the body in motion, the very act of moving that births fractal subjectivities. The browser's dynamic leap is the true link in the media. Links are a paradox uniting the full and empty space between nodes in the network. They are the means of connection through rupture. They underlie the continuity of space by breaking it, and folding it back together. Moulthrop says the link is comprised of two parts "visible, binary circuit of connection" and "unseen matrix, or 'structure of possible structures'" (Moulthrop, 1997, 663). Breakdown, he says, "may be the most important cultural aspect of cybertext" (1997, 664). As voyagers in seemingly unmapped terrain, we are naturally explorers of the Cartesian coordinates of multidimensional space. Our universe is not flat and we flow between dimensions as we fold space between one knot and the next. In a blink, perspective and place shifts. It is a push through the tension, resistance, and reluctance of the full space for the browser to pull herself forward—hand over hand on the rungs of a ladder. How can we not be changed by the journey? The spaces we keep circling back to are the moments that stand out in time: those memorable moments along our path, the snapshots of our travels; those moments that refuse to release us are the ones that we need to keep returning to—to travel through—in order to resize them to normal (rather than resonant) space. They are suspended, trapped in oscillating pan-mnemonic space; they are conceptual knots that exist independent of space-time, isolated moments outside of the fabric of four dimensions that are pan-spatio-temporal. These conceptual knots are wounds, open wounds or scars, a web of scars that traverses the body in three dimensions like Jackson's monster's. The fourth dimension that she omits is time, of course. That dimension that is sewn into the creature's consciousness so integrally that she cannot even see it, unless she becomes a writer and thereby browses her own fractured story in short-term mnemonic space. Browsing becomes a balm for healing monstrous dimensional multiplicity. Moulthrop says breakdown is a "process not a product" and that it emphasizes the contingency of technology's structures and claims ("Traveling" n.p.).

In these texts, we are always slightly out of phase with narratological time. The act of transformation in browsing is a product of the phase shift of inhabiting the space-time of arche-writing, plus the contextual drift, in textual space. This is because our motion moves us from knot to knot, never fully inhabiting the space-time of a node because, as outsiders, as browsers, we are unglued from the dimensions of the text. As browsers, we inhabit a state of Derridean *différance* or shamanic ecstasy. New realities are born of continually shifting perspectives. The contextual drift of our leaping through the full space of a textual cosmos births a phase shift that keeps us always slightly out of sync with the fractal space-time of a text. We experience the present moment at a distance, at arm's length, through the narrator's eyes, in a character's shoes. We experience the present moment as a spatial—not temporal—dimension (McLuhan and

McLuhan 47). Enraptured, as browsers we voyage through key moments in a work, cycling around and back again as a healing process. Navigating through this tangle of ideas in mnemonic space are the gestures of memory, of the intradimensional time traveler, of the dreamer. Our intuitive navigation is movement and our movement births rupture: the rapture of the browser. The body in motion is the meaning of the text and the act of choosing movement is where we find agency.

The concept of agency is key to our interaction in textual and game spaces. The very fact of our movement in these environments—our navigation—is what gives us pleasure in the reading experience and endows us with a limited form of autonomy. Our interactive motions become plot events and constitute what we normally think of as 'story.' Interactivity is limited in all contemporary works; however, what is unrestricted and what makes this form of reading compelling is the fact of our movement through the text. Murray argues for movement as a language (149) in its own right in games and for gesture as an "emotional repertoire for interactivity" (191).While these texts in the new media are clearly an interim form in a state of technological flux, the model of immersive interactivity they are aiming for is something closer to that of the computer-based adventure game than the printed novel. However, the different kinds of games that are being created as literary hypertexts are based on widely divergent models from commercial adventure games. In fact, it is difficult to see a connection between Natalie Bookchin's violent feminist reinterpretation of a Borgesian narrative in *The Intruder* and the opulent, depopulated landscapes and rooms of an immersive gameworld like *Myst*. Espen Aarseth argues that the adventure game dismantles earlier concepts of story and instead privileges plot (112). This has significant implications for what we deem satisfying in our electronic spaces as opposed to on the page. Murray, for example, puts forward the premise that closure in electronic texts is achieved when the plot is mapped rather than understood, and posits that the reader derives pleasure from the "refusal of climax" (174) in the story.

Integral to this discussion are notions of interactivity and agency. Murray argues that agency is acquired through the physical act of navigating a text. Immersive story spaces operate as threshold environments and, with their transitional objects like the mouse or joystick, embody a "transformative power" (Murray 170) that is of a greater intensity than we are used to in fiction. They embody something closer to the power of film—or of the process of creation itself. The new media frequently call attention to their own writing, and "simulated narratives allow us to appreciate process" Murray believes (181); however, it is the process of playing and navigating, not writing, that comes to the foreground in the space-time of these electronic texts.

5. Conclusion(s)

The whole concept of reaching a conclusion or drawing conclusions is, of course, antithetical to the nature of this kind of literature as much as to my aims in this work as a whole. However, it is perhaps appropriate to tuck in some of the loose threads and tie together all of this as some kind of a patchworked piece.

This is ultimately a study of irreducible forms. The multi-dimensional matrix, the unfolding fold, the spinning Möbius strip, the intricate knot. I have explored matrices, folds, knots, all of them, perhaps only adding to their complexity rather than managing to unravel them. The only way to truly unsnarl irreconcilables of course is to twing, as Óh-T'bee demonstrates. I have twinged? Twung? Twisted? Danced as hard as I could through raising arguments, shapes and states—probes, McLuhan would have called them—that cut across and through these constructions in space and time: the quantum, browsing, becoming, agency, noise, flow, *différance*, interface, objects, events, duration, intervallic space, topology, complexity, ecstasy, incorporation, inscription, translation, heterotopic space, hierophanies, hysteria, hybridity, *chora,* translation, transformance, interference, entanglement, chaos, Hilbert space, speed, resonance, rupture, rapture, wanderlust, subjectivities, all kinds of systems, including the circulatory one of the body itself.

Gilles Deleuze has noted that Gottfried Leibniz's mathematics works with irreducibles, with a calculus of limits—of irreducibles versus combinatories (Deleuze, 1993, 48). Binary logics. What these irreducible, illogical, intuitive narrative systems—Jackson's, Coverley's and Slattery's—combine to produce and demonstrate in their active (and dynamic) process in real time are emergent properties of the quanta of the multiple, hybrid, complex wholes. The emergent properties of narrative as a component of the system of the subject in process, the subject as event. Collectively they are all places where spaces and bodies converge outside of time, space and memory, and rupture syntax for cyberfeminist ends.

Leibniz's mathematical bodies were part of a closed system, his monadology. For him, the whole history of the subject, including the (mathematical) body:

> goes through the wholes-and-parts, things and substances, by means of extensions, intensions, and individuals, and by which the concept itself, in conformity with each level, becomes a subject. A rupture is opened with the classical conception of the concept as a being of reason: the concept is no longer the essence or the logical possibility of its object, but the metaphysical reality of the corresponding subject. It can be stated that all relations are internal, precisely because the predicates are not attributes (as in the logical conception). (Deleuze, 1993, 54)

For this quantum feminist subject, my nomadology is a 21st century perspective on the interiors and exteriors, parts and wholes, objects and events that rupture the space-time of the text as we, as browsers, exercise our wanderlust and ecstatic shamanism in these rooms. These bodies, unlike Leibniz's bodies though, are in circulation and while I have examined self-defined feminist systems, their machineries pose larger implications for works in the new media as a whole, for places where all genders, subjects and agents might explore more open and inclusive forms for narrative re/tellings.

In mnemonic space, there is no past or future, only intervals. The twing, however, is irreducible. Transformance is the only door out.

The Cyberfeminist Manifesto

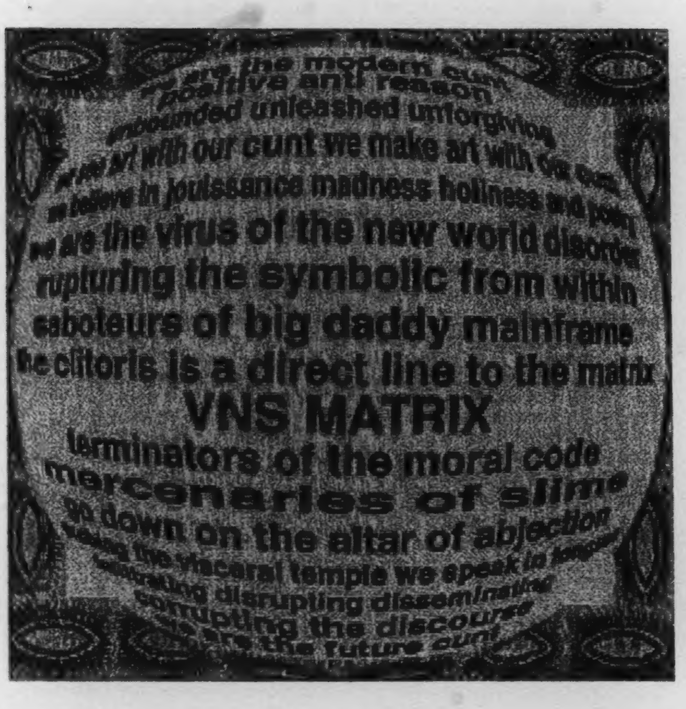

we are the modern cunt
positive anti reason
unbounded unleashed unforgiving
we see art with our cunt we make art with our cunt
we believe in jouissance madness holiness and poetry
we are the virus of the new world disorder
rupturing the symbolic from within
saboteurs of big daddy mainframe
the clitoris is a direct line to the matrix
VNS MATRIX
terminators of the moral code
mercenaries of slime
go down on the altar of abjection
probing the visceral temple we speak in tongues
infiltrating disrupting disseminating
corrupting the discourse
we are the future cunt

Fig. 1.1. VNS Matrix
(Source: http://sysx.org/vns/manifesto.html)
Used with permission

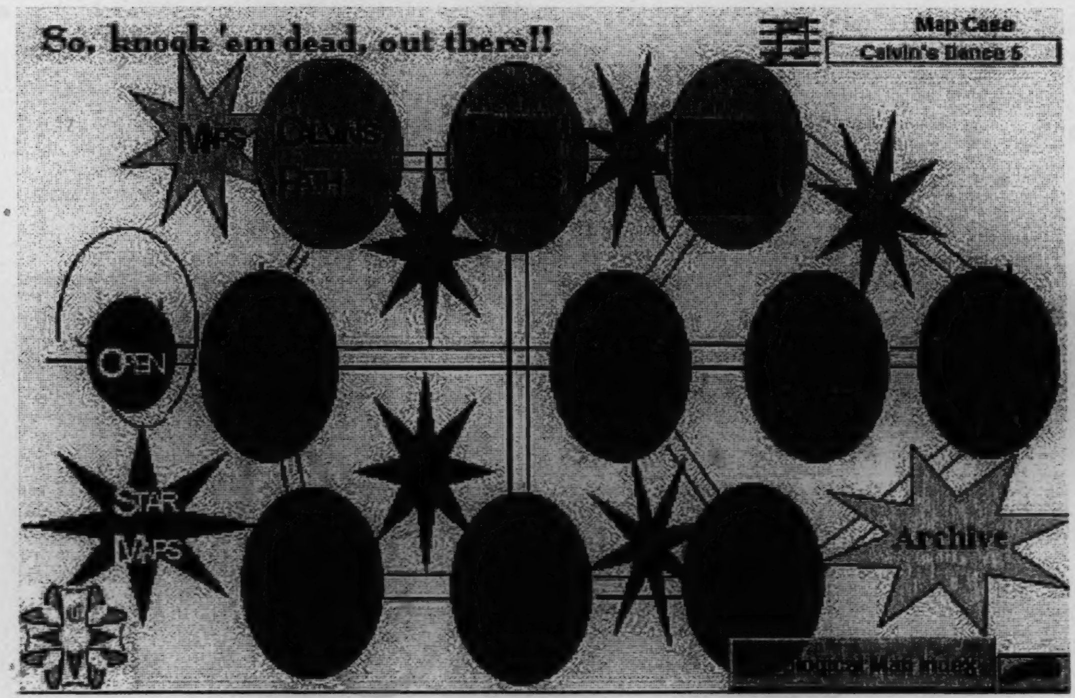


Figure 2.1: Calvin's version of the narratological structure of *Califia*
From M. D. Coverley, *Califia*, Eastgate Systems, Watertown MA.
Used by permission.

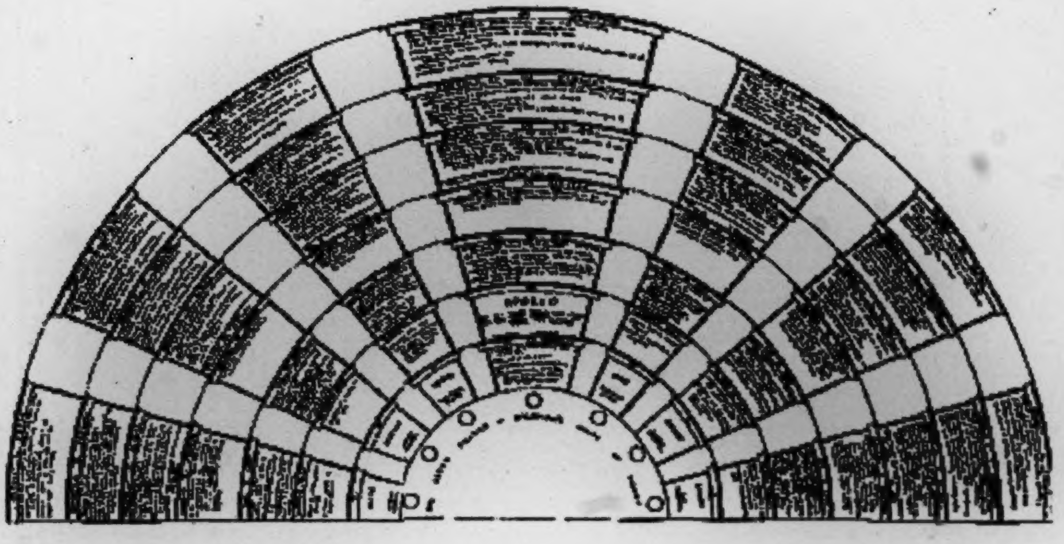
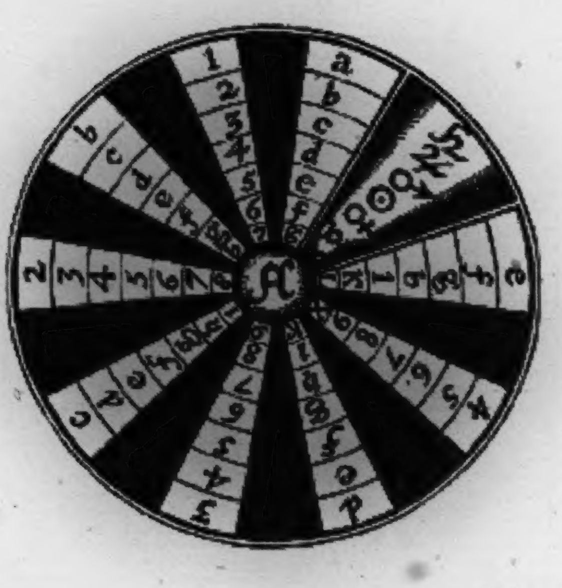


Fig. 2.2. 'All the world's a stage': Giulio Camillo's Memory Theatre (believed to have been the inspiration for the building of the Globe Theatre in London) (http://cadre.sjsu.edu/switch/sound/articles/wendt/folder6/ng6211.htm) Published in *Switch*. Used with permission.



aa	bos tardas	121	aa	homo truncus	136
ae	alueus mellis	122	ae	fœmina suspensa	137
ai	formido horti	123	ai	lupus in cadaver	138
ao	muscipula	124	ao	Gallina ouis incubans	139
av	iuncorum fascis	125	av	sepulchrum	140
aa	equus mortis	126	aa	fornax	141
ae	septem candelabra	127	ae	stuppa succensa	142
ai	thus redolens	128	ai	Gurgustium piscium	143
ao	sulphur scintillans	129	ao	canis catellos lactens	144
av	trabs obstans	130	av	curriculum'	145
aa	Asinus lentus	131	aa	Galli insilientes	146
ae	crater	132	ae	Aries impetens	147
ai	vas pandoræ	133	ai	porcus vastator	148
ao	cornucopia	134	ao	puer ludens	149
av	taurus retrectans	135	av	Timpanum	150

Fig 2.3. One of Giordanno Bruno's Memory Wheels and a detail from a chart of mnemonic correspondences, from *De Umbris Idearum* (1582) (http://cadre.sjsu.edu/switch/sound/articles/wendt/folder6/ng6212.htm) Published in *Switch*. Used with permission.

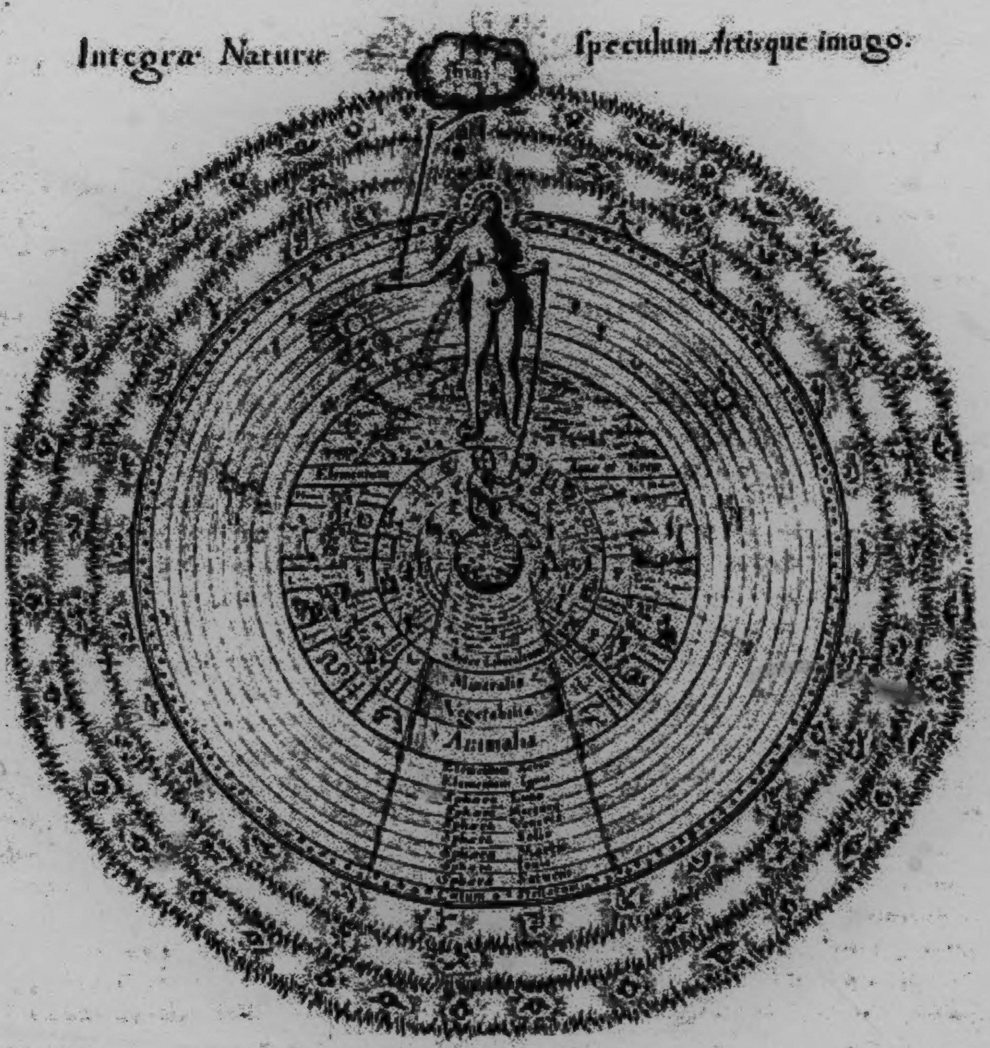

Integra Naturæ Speculum Artisque imago.
Mineralia
Vegetabilia
Animalia

Fig 2.4. The often reprinted Robert's Fludd's Great Chain of Being, a mnemonic system of correspondences in the microcosm and the macrocosm
From *History of the Macrocosm and Microcosm* (*Utriusque Cosmi Maioris scilicet et Minoris Metaphysica, Physica atque Technica Historia* 1617–21)
<http://gopher.princeton.edu/~his291/Fludd.html>

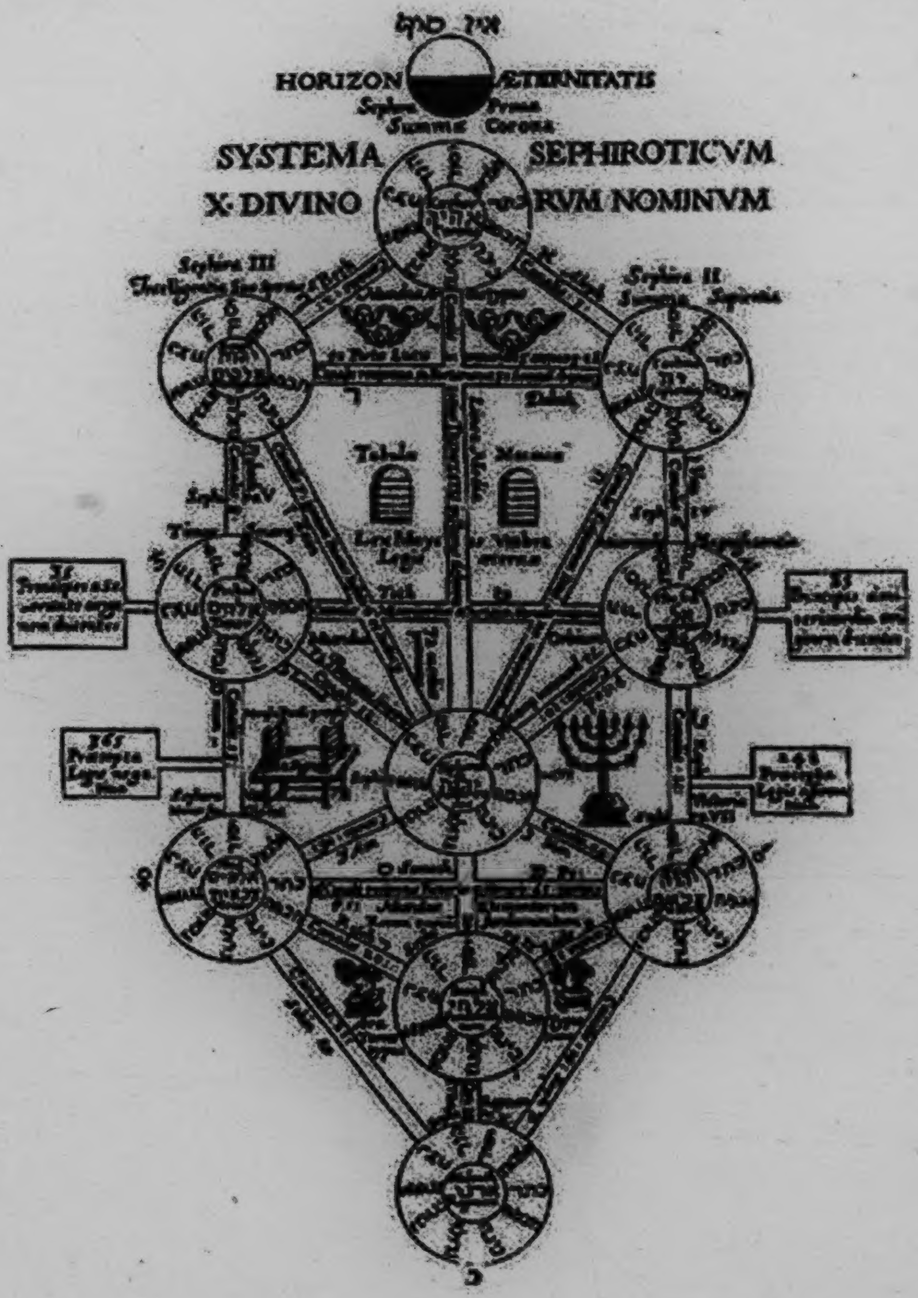


Fig. 2.5. Athanasius Kircher's illustration of the Tree of the Sephiroth published in his book, *Oedipus Aegyptiacus* (1652).
From M. D. Coverley, *Califia*, Eastgate Systems, Watertown MA.
Used by permission.

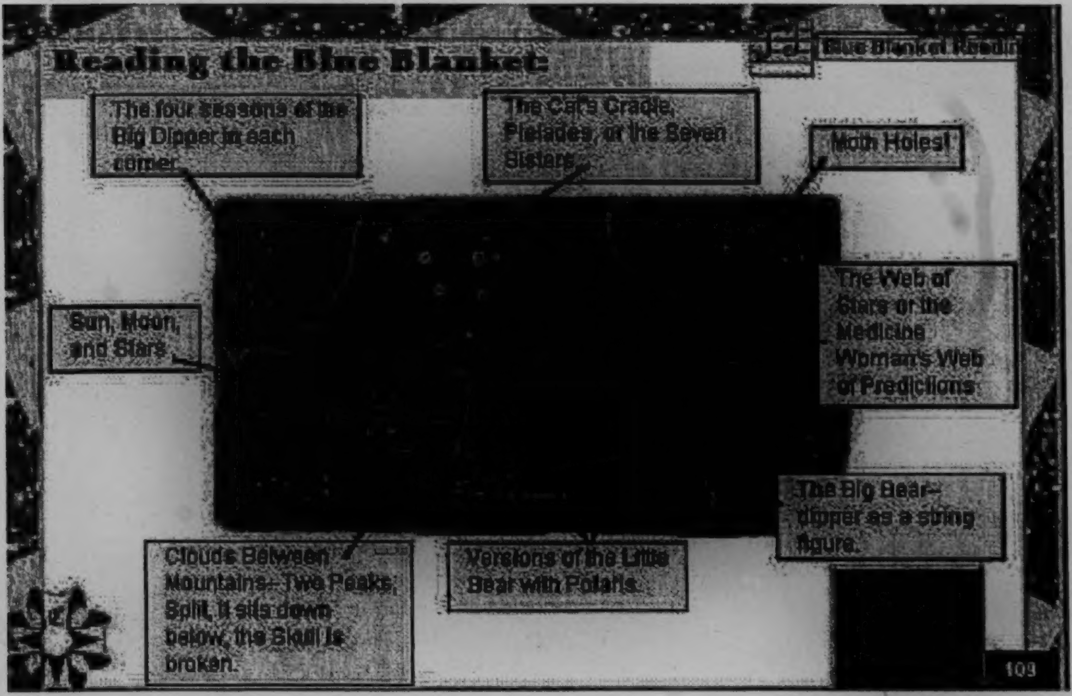
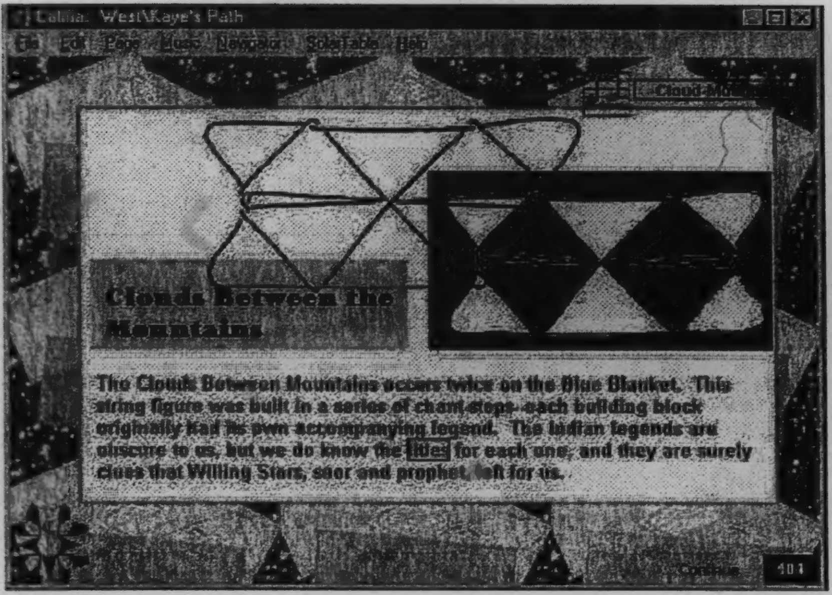

Reading the Blue Blanket:
Blue Blanket Readin
The four seasons of the Big Dipper in each corner.
The Cat's Cradle, Pleiades, or the Seven Sisters.
Moth Holes!
Sun, Moon, and Stars
The Web of Stars or the Medicine Woman's Web of Predictions
The Big Bear--dipper as a string figure.
Clouds Between Mountains--Two Peaks; Split, it sits down below, the Skull is broken.
Versions of the Little Bear with Polaris.
109

Fig. 3.1. Unraveling the mysteries of the Blue Blanket in *Califia*
From M. D. Coverley, *Califia*, Eastgate Systems, Watertown MA.
Used by permission.



Clouds Between the Mountains

The Clouds Between Mountains occurs twice on the Blue Blanket. This string figure was built in a series of chant-steps -each building block originally had its own accompanying legend. The Indian legends are obscure to us, but we do know the titles for each one, and they are surely clues that Willing Stars, seer and prophet, left for us.

Fig. 3.2. String Games in *Califia*
From M. D. Coverley, *Califia*, Eastgate Systems, Watertown MA.
Used by permission.

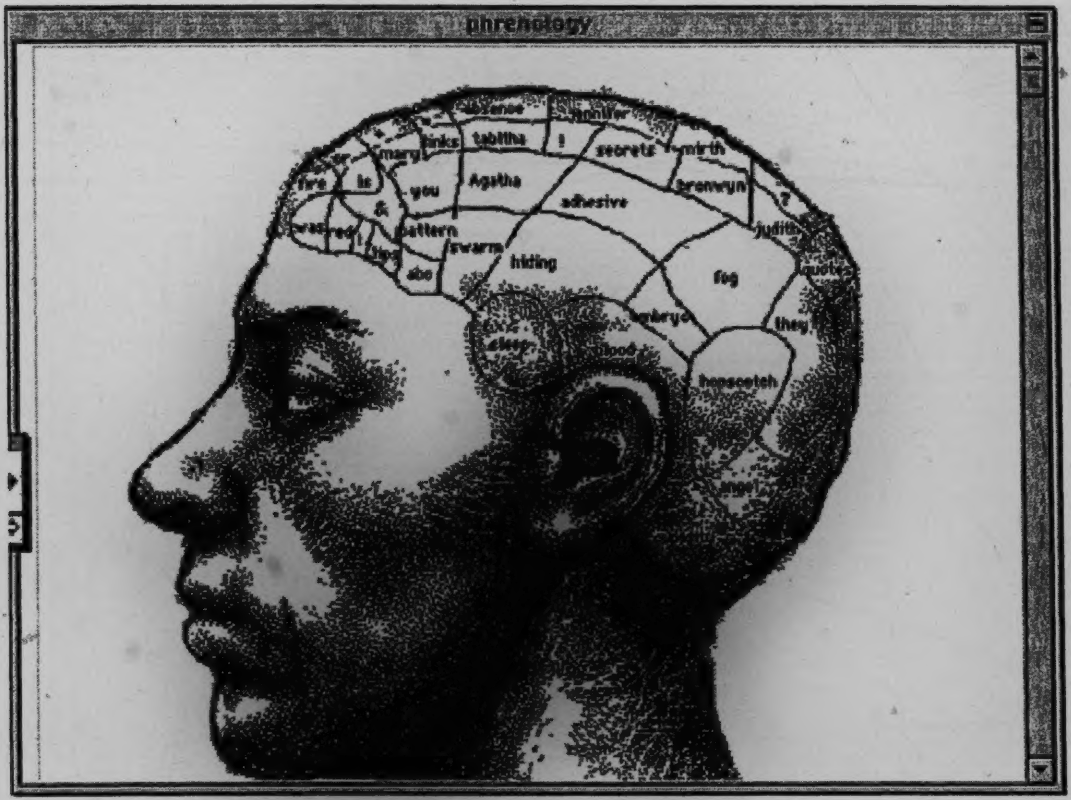


Figure 4.1. Phrenology as navigational structure in Jackson's *Patchwork Girl*
From Shelley Jackson, *Patchwork Girl*, Eastgate Systems,
Watertown MA. Used by permission.

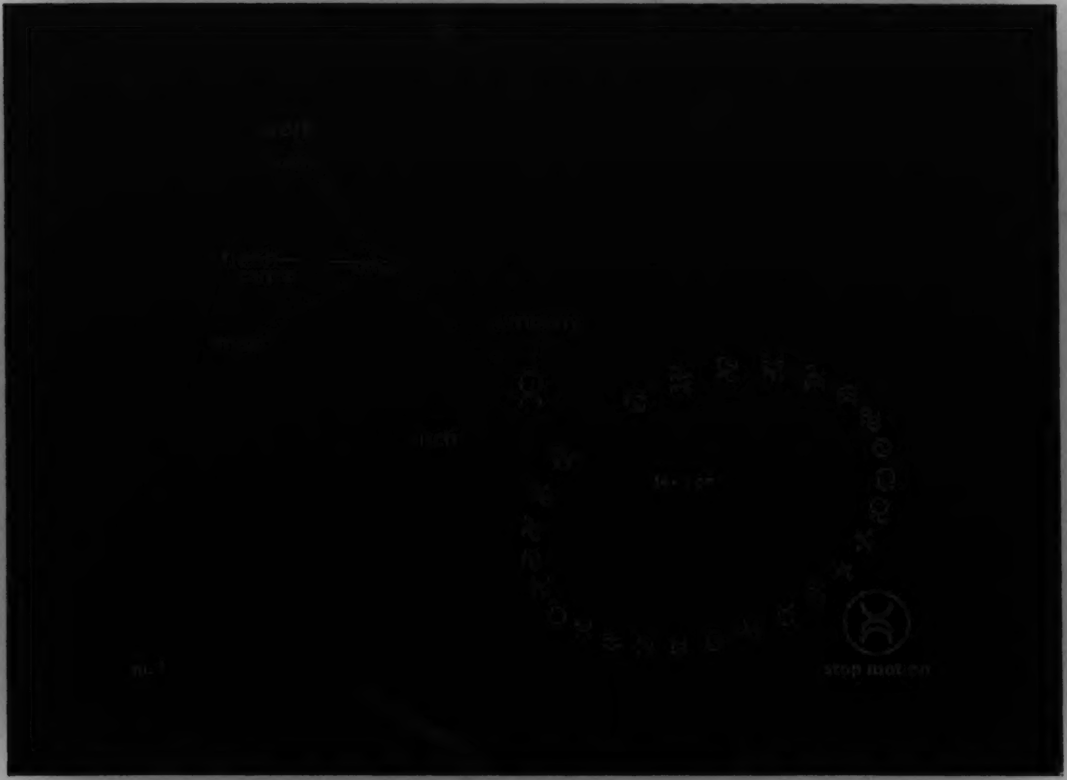
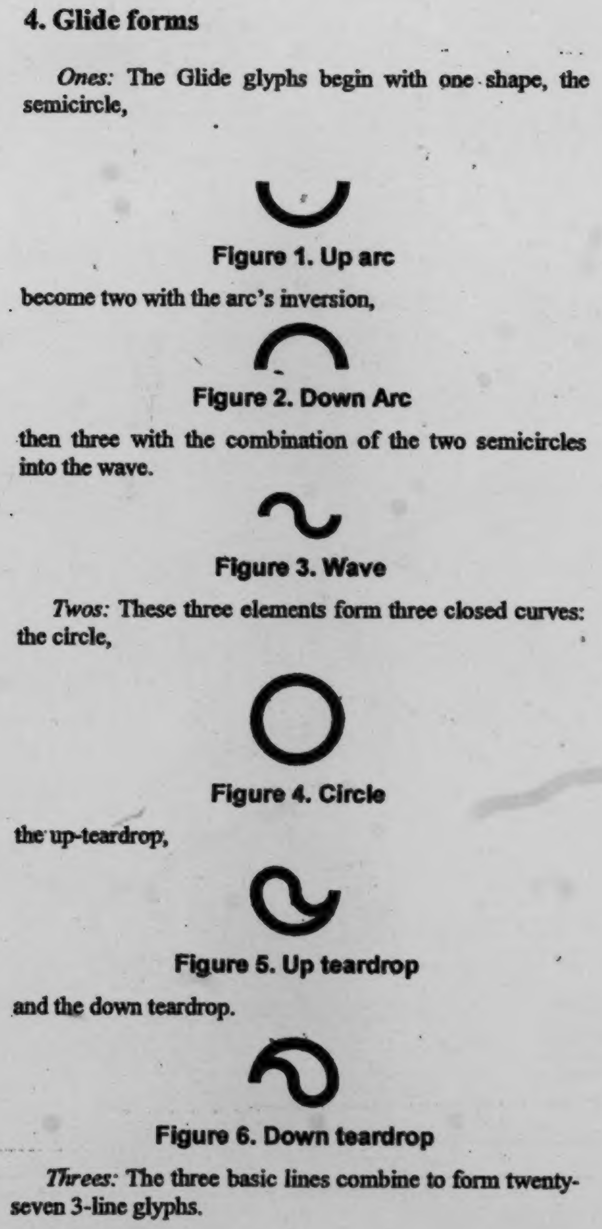


Fig. 4.2. The dynamic Glide lexicon
From Diana Reed Slattery, William Brubaker and Daniel O'Neil, *Glide: An exploration of visual language*. Used with permission.



4. Glide forms

Ones: The Glide glyphs begin with one shape, the semicircle,

Figure 1. Up arc

become two with the arc's inversion,

Figure 2. Down Arc

then three with the combination of the two semicircles into the wave.

Figure 3. Wave

Twos: These three elements form three closed curves: the circle,

Figure 4. Circle

the up-teardrop,

Figure 5. Up teardrop

and the down teardrop.

Figure 6. Down teardrop

Threes: The three basic lines combine to form twenty-seven 3-line glyphs.

Fig. 4.3. Glyph origins are derived from the gestures of harvesting the pollen of the Lily From Diana Reed Slattery, William Brubaker and Daniel J. O'Neil, "Mazes and Morphs: Modeling Meaning in Glide, A Non-Linear Dynamic Visual Language," Glide website Used with permission.

Works Cited

---. Bernini, Giovanni Lorenzo. 21 Apr 02. *Encyclopedia.com.* <http://www.encyclopedia.com/searchpool.asp?target=bernini>.

---. "Gianlorenzo Bernini" (1598-1680). *Artchive.* 21 Apr 02. <http://www.artchive.com/artchive/B/bernini.html>.

---. "Grace Hartigan, Painting from Popular Culture: Three Decades." *Exhibits: Spring 2000.* Susquehanna Art Museum. 13 Apr to 30 June 2000. 19 Apr 2002. <http://cginet.com/sqart/exhibits/spr2000.htm>.

---. "Robert Fludd's Microcosm and Macrocosm" 27 July 2002. <http://gopher.princeton.edu/~his291/Fludd.html>.

Aarseth, Espen. *Cybertext: Perspectives on Ergodic Literature.* Baltimore: Johns Hopkins, 1997.

Aczel, Amir D. *The Mystery of the Aleph.* New York: Simon & Schuster, 2001.

Adorno, T.W. *Aesthetic Theory.* Trans. C. Lenhardt. London: Routledge & Kegan Paul, 1984.

Barnes, Djuna. *Nightwood.* New York: New Directions, 1961.

Barnett, Jo Ellen. *Time's Pendulum.* New York: Harcourt Brace, 1998.

Bassnett, Susan. *Translation Studies.* Revised Ed. London and New York: Routledge, 1991.

Baudrillard, Jean. *The Ecstasy of Communication.* Trans. Bernard and Caroline Schutze. New York: Semiotext(e), 1988.

---. *Simulations*. Trans. Paul Foss, Paul Patton, Philip Beitchman. New York: Semiotext(e), 1983.

Beiguelman, Giselle. "The Book After the Book/O Livros Depois do Livro." 2000. 13 Apr 2002 <http://www.desvirtual.com/giselle/>.

Benedikt, Michael. "Cyberspace: Some Proposals." *Cyberspace: First Steps.* Ed. Michael Benedikt. Cambridge and London: MIT, 1991. 119-224.

Benjamin, Walter. "The Work of Art in the Age of Mechanical Reproduction." *Illuminations.* Trans. Harry Zohn. New York: Schocken Books, 1968. 217-251

Bergson, Henri. *Matter and Memory.* Trans. Nancy Margaret Paul and W. Scott Palmer. New York: Zone Books, 1991.

Bolter, Jay David. *Writing Space.* Hillsdale, NJ: Lawrence Erlbaum, 1991.

Bolter, Jay David and Richard Grusin. *Remediation: Understanding New Media.* Cambridge: MIT, 1999.

Bookchin, Natalie. *The Intruder*. 1999. Website. 18 May 2000. <http://www.calarts.edu/~bookchin/intruder/>.

Borges, Jorge Luis. "The Aleph." Trans. Norman Thomas Di Giovanni. 25 July 02 <http://www.phinnweb.com/links/literature/borges/aleph.html>.

Bosma, Josephine. "A Byte of VNS Matrix." Posted to the nettime mailing list 28 June 1997. <http://www.desk.nl/~nettime/>.

Braidotti, Rosi. "Cyberfeminism With A Difference." <http://www.let.ruu.nl/womens_studies/rosi/cyberfem.htm>.

---. *Nomadic Subjects.* New York: Columbia, 1994.

Brooke-Rose, Christine. *Amalgamemnon.* Normal, IL: Dalkey Press Archive, 1994. [1984].

Brossard, Nicole. *The Aerial Letter.* Trans. Marlene Wildman. Toronto: Women's Press, 1988.

---. *Baroque at Dawn.* Trans. Patricia Claxton. Toronto: McClelland and Stewart, 1997. (*Baroque d'Aube,* 1995).

---. "Memory: Hologram of Desire." Lucille Nelson, Trans. *Trivia* 13 (Fall 1988): 42-47.

Brown, John Seely and Paul Duguid. "The Social Life of Documents." *First Monday.* 1996. 20 Jan 02. <http://www.firstmonday.dk/issues/issue1/documents/>.

---. *The Social Life of Information.* Cambridge: Harvard Business School Press, 2000.

Brown, Julian. *Minds, Machines and the Multiverse: The Quest for the Quantum Computer.* New York: Simon & Schuster, 2000.

Buci-Glucksmann, Christine. *Baroque Reason: The Aesthetics of Modernity.* Trans. Patrick Camiller. London: Sage, 1994.

Bukatman, Scott. "Virtual Textuality." June 1997. 02 April 1998 <http://jefferson.village.virginia.edu/~jmu2m/bukatman.html>

Burroughs, William S. and Brion Gysin. *The Third Mind.* New York: Viking, 1978.

Bush, Vannevar. "As We May Think." *The Atlantic Monthly.* (July 1945). Online version: <http://www.isg.sfu.ca/~duchier/misc/vbush>.

Calvino, Italo. *Six Memos for the Next Millennium.* Toronto: Vintage, 1995.

Capra, Fritjof. *The Web of Life.* New York: Anchor, 1997.

Carruthers, Mary. *The Book of Memory.* Cambridge: Cambridge UP, 1990.

Case, Sue-Ellen. *Domain-Matrix: Performing Lesbian at the End of Print Culture.* Bloomington and Indianapolis: Indiana UP, 1996.

Casey, Edward S. "The Time of the Glance." *Becomings: Explorations in Time, Memory and Futures.* Ed. Elizabeth Grosz. Ithaca and London: Cornell UP, 1999. 79-97.

Cassell, Justine. "Storytelling as a Nexus of Change in the Relationship Between Gender and Technology: A Feminist Approach to Software Design." *From Barbie to Mortal Kombat:Gender and Computer Games.* Eds. Justine Cassell and Henry Jenkins. Cambridge: MIT, 1998. 298-326.

Castells, Manuel. *The Rise of Network Society. The Information Age: Economy, Society and Culture.* Vol 1. Oxford and Malden, MA: Blackwell, 2000. [1996]

Cerf, Nicolas J. "Information-Theoretic Aspects of Quantum Copying." *Quantum*

Computing and Quantum Communications. Colin P. Williams, Ed. Pasadena: Springer, 1999. 218-234.

Chambers, Iain. *Culture After Humanism: History, Culture, Subjectivity.* London and New York: Routledge, 2001.

Charney, Davida. "The Effect of Hypertext on Processes of Reading and Writing." *Literacy and Computers: The Complications of Teaching and Learning With Technology.* Eds. Cynthia L. Selfe and Susan Hilligoss. New York: Modern Language Association of America. 1994. 238-263.

Cixous, Hélène. *Three Steps on the Ladder of Writing.* Trans. Sarah Cornell and Susan Sellers. New York: Columbia UP, 1993.

Connerton, Paul. *How Societies Remember.* Cambridge: U of Cambridge P, 1989.

Coverley, M.D. (Marjorie Coverley Luesebrink). *Califia.* Watertown, MA: Eastgate Systems, 2000. CD-ROM for Windows.

Crimp, Douglas. "On the Museum's Ruins." *The Anti-Aesthetic.* Ed. Hal Foster. New York: New Press, 1998. 43-56.

Das, Veena. "Subaltern as Perspective." *Subaltern Studies VI: Writings in South Asian History and Society.* Ed. Ranujit Guhc. New Delhi: Oxford UP, 1989. 310-324.

Davis, Brent and Dennis J. Sumara. "Curriculum Forms: On the Assumed Shapes of Knowing and Knowledge." *Curriculum Studies* 32.6 (2000): 821-845.

Davis, Eric. *Techgnosis: Myth, Magic + Mysticism in the Age of Information.* New York: Three Rivers Press, 1998.

de Certeau, Michel. *The Practice of Everyday Life.* Trans. Steven Rendall. Berkley: U of California P, 1984.

de Kerckhove, Derrick. *Connected Intelligence.* Toronto: Somerville House, 1997.

---. *The Skin of Culture.* Toronto: Somerville House, 1995.

Deleuze, Gilles. *Bergsonism.* Trans. Barbara Habberjam and Hugh Tomlinson. New York: Zone Books, 1988.

---. *Cinema 1: The Movement-Image.* Trans. Hugh Tomlinson and Barbara Habberjam. Minneapolis: U of Minnesota P, 1986.

---. *Cinema 2: The Time-Image.* Trans. Hugh Tomlinson and Robert Galeta. Minneapolis: U of Minnesota P, 1989.

---. *The Fold: Leibniz and the Baroque.* Trans. Tom Conley. Minneapolis and London: U of Minnesota P, 1993.

Deleuze, Gilles and Félix Guattari. *A Thousand Plateaus.* Trans. Brian Massumi. Minneapolis: U of Minnesota P, 1987.

de Lotbinière-Harwood, Susanne. *Re-Belle et Infidèle/The Body Bilingual.* Toronto: Women's Press, 1991.

Derrida, Jacques. *Archive Fever.* Trans. Eric Penowitz. Chicago: Chicago UP, 1995.

---. "*Différance.*" *Margins of Philosophy*. Trans. Alan Bass. Chicago: U of Chicago P, 1982. 3-27.

---. "*Différance*," *Speech and Phenomena*. Trans. David B. Allison. Evanston: Northwestern UP, 1973. 129-160.

---. *Of Grammatology*. Trans. Gayatri Spivak. Baltimore and London: Johns Hopkins UP, 1976.

Dery, Mark. "Memo Mori." Online posting. 07 Feb 2002. Nettime. 07 Feb 2002 <http://www.nettime.org>.

Dodge, Martin and Rob Kitchin. *Atlas of Cyberspace*. Reading, Massachusetts: Addison-Wesley, 2001.

Douglas, Jane Yellowlees. "'How Do I Stop This Thing?': Closure and Indeterminancy in Interactive Narratives." *Hyper/Text/Theory*. Ed. George Landow. Baltimore and London: Johns Hopkins UP, 1994. 159-188.

Drucker, Johanna. *The Visible Word: Experimental Typography and Modern Art 1909-1923*. Chicago: U of Chicago P, 1994.

DuPlessis, Rachel Blau. "WOOLFENSTEIN." *Breaking the Sequence*. Eds. Ellen G. Friedman and Miriam Fuchs. Princeton: Princeton UP, 1989. 99-114.

Faces. <http://faces.vis-med.ac.at/>.

Fang, Irving. *A History of Mass Communications: Six Information Revolutions*. Boston: Focal Press, 1997.

Farmer, David W. and Theodore B. Stanford. *Knots and Surfaces: A Guide to Discovering Mathematics*. Vol 6. Providence: American Mathematical Society, 1991.

Fink, Thomas and Yong Mao. *85 Ways to Tie a Tie: The Science and Aesthetics of Tie Knots*. New York: Broadway Books, 1999.

Fisher, Caitlin. *These Waves of Girls*. Feb 2001. <http://www.yorku.ca/caitlin/waves/>.

Foucault, Michel. *The Archeology of Knowledge*. Trans. A.M. Sheridan Smith. London and New York: Tavistock Publications, 1972.

---. *Language, Countermemory, Practice*. Trans. Daniel F. Bouchard and Sherry Simon. Ithaca: Cornell UP, 1977. 139-164.

---. *The Order of Things*. New York: Vintage, 1994. [1970]

Fox, Jack, Alvin E. Davis and B. Lebovits. "An Experimental Investigation of Hubbard's Engram Hypothesis (Dianetics). *Psychological Newsletter* 10. (1959): 131-134. Online version. 24 July 2002. <http://wpxx02.toxi.uni-wuerzburg.de/~krasel/CoS/dianetics_test.html>.

Frank, Joseph. *The Idea of Spatial Form*. New Brunswick and London: Rutgers UP, 1991.

Friedman, Ellen G. and Miriam Fuchs. "Contexts and Continuities: An Introduction to

Women's Experimental Fiction in English." *Breaking the Sequence*. Princeton: Princeton UP, 1989. 3-51.

Fuller, Matthew. "Interview with Richard Wright / Bank of Time: Growth Through Idleness." Online posting. 12 Apr 2002. Nettime. 12 Apr 2002. <http://www.nettime.org>.

Gagnon, Jean. "Dionysus in Wonderland: A Few Musical Metaphors in Techno-Culture." Trans. Gisèle Cervisi. *Clicking In: Hot Links To A Digital Culture*. Ed. Lynn Hershman Leeson. Seattle: Bay Press, 1996. 291-305.

Gebser, Jean. *The Ever-Present Origin: Foundations of the Aperspectival World*. Trans. Noel Barstad with Algis Mickunas. Athens, Ohio: Ohio UP, 1986. [1953].

Gibson, William. *Neuromancer*. New York: Ace Books, 1984.

Gladwell, Malcolm. "The Social Life of Paper." *New Yorker Online*. (25 March 2002). 31 Mar 02 <http://www.newyorker.com/printable?critics/020325crbo_books>.

Gleick, James. *Faster: The Acceleration of Just About Everything*. New York: Vintage, 2000.

Godard, Barbara. "Theorizing Feminist Discourse/Translation." *Tessera* .6 (Mar. 1989): 42-53.

Govinda, Lama Anagarika. "The Mystery of Time: An Excerpt." *Maitreya World*. 08 Apr 2002 <http://www.hotbitscafe.com/go/maitreya/lag-mot.html>.

Greene, Brian. *The Elegant Universe*. New York: Vintage, 1999.

Gromala, Diana. "Pain and Subjectivity in Virtual Reality." *Clicking In: Hot Links To A Digital Culture*. Ed. Lynn Hershman Leeson. Seattle: Bay Press, 1996. 222-237.

Grosz, Elizabeth. *Architecture from the Outside: Essays on Virtual and Real Space*. Cambridge and London: MIT, 2001.

---. "Becoming…an Introduction." *Becomings: Explorations in Time, Memory and Futures*. Ed. Elizabeth Grosz. Ithaca and London: Cornell UP, 1999. 1-11.

---. *Volatile Bodies: Toward a Corporeal Feminism*. Bloomington: Indiana UP, 1994.

---. "Women, *Chora,* Dwelling." *Postmodern Cities and Spaces*. Ed. Sophie Watson and Katherine Gibson. Oxford and Cambridge: Blackwell, 1995. 47-58.

Guertin, Carolyn. *Assemblage: The Women's New Media Gallery. trAce Online Writing Centre*. <http://trace.ntu.ac.uk/traced/guertin/assemblage.htm>.

---. "Queen Bees and the Hum of the Hive." *BeeHive* 01.02. (July 1998). <http://beehive.temporalimage.com/archive/12arc.html>.

Guertin, Carolyn and Marjorie Coverley Luesebrink. "The Progressive Dinner Party." *Riding the Meridian*. Feb 2000. <http://www.heelstone.com/meridian/templates/Dinner/predinner.htm>.

Guyer, Carolyn. "Buzz-Daze Jazz and the Quotidian Stream." 04 April 1997. <http://mothermillennia.org/Carolyn/Guyer_Essays.html>.

---. *Quibbling*. Cambridge, MA: Eastgate Systems, 1992. Software.

Hamilton, Sheryl. "Thoughts on Cyberfeminism." *Maid in Cyberspace*. 12 July 2000. <http://www.studioxx.org/maidincyberspace/sheryltext.html>.

Haraway, Donna. *Simians, Cyborgs and Women*. New York: Routledge, 1991.

Harpold, Terence. "Threnody: Psychoanalytic Digressions on the Subject of Hypertexts." *Hypermedia and Literary Studies*. Eds. Paul Delany and George P. Landow. Cambridge and London: MIT P, 1991. 171-181.

Harryman, Carla. *There Never Was A Rose Without a Thorn*. San Francisco, CA: City Lights, 1995.

Hartigan, Brian. "Loving Lucy." *TV Guide*. (Nov 10-16, 2001): 12-16.

Hayles, N. Katherine. Abstract. Conference Paper, Pennsylvania State University. 2000. < http://www.sva.psu.edu/performativesites/artists/nkatherinehayles.html>.

---. *Chaos Bound: Orderly Disorder in Contemporary Literature and Science*. Ithaca: Cornell UP, 1990.

---. "Embodied Virtuality: Or How to Put Bodies Back into the Picture." *Immersed in Technology: Art and Virtual Environments*. Cambridge and London: MIT, 1996. 1-28.

---. "Flickering Connectivities in Shelley Jackson's Patchwork Girl: The Importance of Media-Specific Analysis." *Postmodern Culture* 10.2 (Jan 2000). Online: http://jefferson.village.virginia.edu/pmc/.

---. *How We Became Posthuman*. Chicago: U of Chicago P, 1999.

---. "Materiality of Informatics." *Configurations* 1.1 (1993): 147-170.

---. "Print is Flat, Code is Deep: Rethinking Signification in the New Media." Conference Paper. Digital Arts and Culture '99 (DAC), Georgia Institute of Technology: (29 October 1999).

---. "Situating Narrative in an Ecology of New Media." *Modern Fiction Studies* 43.3 (Fall 1997): 573-576.

---. "Text Out of Context: Situating Postmodernism Within an Information Society." *Discourse* 9 (Spring-Summer 1987): 24-36.

Hegarty, Paul. "Full With Noise: Theory and Japanese Noise Music." *Ctheory* 24.3. Article #97.(08 Nov 2001). 08 Nov 2001 <http://www.ctheory.net>.

Heim, Michael. *The Metaphysics of Virtual Reality*. Oxford and New York: Oxford UP, 1993.

Heise, Ursula K. *Chronoschisms: Time, Narrative and Postmodernism*. Cambridge: Cambridge UP, 1997.

Hejinian, Lyn. *My Life*. (Second Version) LA: Sun & Moon Press, 1987.

Heumann, Michael. "Information Overload: Futurism, Technology and the Word." *Perforation* 7.1. 08 Apr 2002 <http://www.pd.org/topos/perforations/perf7/info-

overload/infover.html>.

Higgins, Dick. "Intermedia." 16 June 2002. <http://www.fluxus.org/FLUXLIST/inter40.jpg>.

Hofstadter, Douglas. *Metamagical Themas.* New York: Bantam, 1986, 528.

Holz, Daniel et al. "Physics in Knots." *Physical Origins of Time Asymmetry.* Eds. J.J. Halliwell, J. Pérez-Mercader and W.H. Zurek. Cambridge: Cambridge UP, 1994. 452-464.

Holtzman, Steven. *Digital Mosaics: The Aesthetics of Cyberspace*. New York: Touchstone,1998.

Hovagimyan, G.H. "Notes on Immersion." 08 April 1998. <http://www.millersv.edu/~resound/*vol1iss2/immersion.html>.

Howe, Susan. *My Emily Dickinson.* Berkeley, CA: North Atlantic Books, 1985.

Hughes, Robert. "Andy Warhol (1928-1987): American Visions." *Artchive*. 19 Apr 2002 <http://www.artchive.com/artchive/W/warhol.html>.

---. *Shock of the New*. 2E. London: Thames and Hudson, 1991.

Irigaray, Luce. *Elemental Passions.* Trans. Joanne Collie and Judith Still. London: Athlone, 1992.

---. *An Ethics of Sexual Difference.* Trans. Carolyn Burke and Gillian C. Gill. Ithaca, NY: Cornell UP, 1993.

Jackson, Shelley. *Patchwork Girl, Or A Modern Monster by Mary/Shelley and Herself.* Watertown, MA: Eastgate Systems, 1995. Software.

Jameson, Frederic. *Postmodernism, or, The Cultural Logic of Late Capitalism.* Durham: Duke UP, 1991.

Jenik, Adriene. *Mauve Desert: A CD-ROM Translation*. Los Angeles: Shifting Horizon Productions, 1997.

Jenks, Chris. "Frontispiece" and "The Centrality of the Eye in Western Culture: An Introduction." *Visual Culture.* Ed. Chris Jenks. London: Routledge, 1995. i, 1-25.

Jevbratt, Lisa. "Interview: Lisa Jevbratt." With Steve Dietz. 1998-99. 08 April 2001. <http://www.walkerart.org/gallery9/jevbratt/g9_jevbratt_interview.html>.

---. *1:1*. Online. 1999. 08 April 2001. <http://c5corp.com/1to1/index.html>.

---. *The Stillman Projects*. 1998-99. 08 April 2001. <http://cadre.sjsu.edu/jevbratt/stillman/YSH/>.

jodi.org. Jan 2001 <http://www.jodi.org>.

Johnson, Steven. *Interface Culture.* San Francisco: HarperCollins, 1997.

Johnston, John. *Information Multiplicity: American Fiction in the Age of Media Saturation.* Baltimore: Johns Hopkins UP, 1998.

Joyce, Michael. *afternoon, a story.* Cambridge, MA: Eastgate Systems, 1989. Software. [1987].

---. "Beyond Next Before You Once Again." *Othermindedness: The Emergence of Network Culture.* Ann Arbour: Michigan UP, 2000. 81-106.

---. "Nonce Upon Some Times: Rereading Hypertext Fiction." *Modern Fiction Studies* 43.3 (Fall 1997): 579-597.

---. *Of Two Minds: Hypertext Pedagogy and Poetics.* Ann Arbor: Michigan UP, 1995.

---. *Othermindedness: The Emergence of Network Culture.* Ann Arbor: Michigan UP, 2000.

Kac, Eduardo. "Holopoetry." *Visible Language* 30.2 (May 1996): 186-213.

Kaplan, Nancy. "E-Literacies: Politexts, Hypertexts and Other Cultural Formations in the Late Age of Print." <http://raven.ubalt.edu/staff/kaplan/lit/>. 1995-97.

Kaufman, Jason Edward. "Frank Stella: Works from 1970 to 1987 – Abstract "Painting" in 3-D." *New York City Tribune*, (16 Nov 1987): 10,14. 19 Apr 2002. <http://www.jasonkaufman.com/articles/frank_stella.htm>.

Kaye, Nick. *Site-Specific Art: Performance, Place and Documentation.* London: Routledge, 2000.

Keller, Ed. "Cinematic Thresholds: Instrumentality, Time and Memory in the Virtual." 1995. 20 June 2002. <http://www.basilisk.com/C/CineThressH_966.html>.

Kendall, Robert. "Re: Flash." A posting to the Webartery mailing list. 08 Oct 2002. <webartery@yahoogroups.com>.

Kennedy, Kathy. "Cell Phones and Choirs." *Out Front,* CBC Radio. 17 Apr 2002. Streamed media. 17 Apr 2002. <http://radio.cbc.ca/programs/outfront/listen/2002/apr1702.html>.

Kirschenbaum, Matt. "Truth, Beauty and the User Interface: Notes on the Aesthetics of Information." <http://www.engl.virginia.edu/~mgk3k/papers/beauty> 1997.

---. "A White Paper on Information." 06 Dec 1998. *Digital Arts and Culture* 1998. 20 Jan 2002. <http://jefferson.village.virginia.edu/~mgk3k/white/index.html>.

Kittler, Friedrich A. *Discourse Networks 1800/1900.* Trans. Michael Metteer with Chris Cullens. Stanford: Stanford UP, 1990.

---. "The History of Communication Media." Online posting. 30 July 1996. *Ctheory.* 20 Mar 2002 <http://www.ctheory.net/printer.asp?id=72>.

Kluitenberg, Eric. "The Politics of Cultural Memory." Online posting. 21 July 1999. Nettime. 21 July 1999 <http://www.nettime.org/>.

---. "Transfiguration of the Avant-Garde: The Negative Dialectics of the Net." Online posting. 23 Jan 2002. Nettime. 23 Jan 2002 <http://www.nettime.org>.

Koskimaa, Raine. "Visual Structuring of Hyperfiction Narratives." *Electronic Book Review 6. Image + Narrative, Part 1.* Winter 1997-98. <http://www.altx.com/ebr/ebr6/6koskimaa/6koski.htm>. 05 May 2001.

Krauss, Rosalind. *"A Voyage on the North Sea": Art in the Age of the Post-Medium*

Condition. London: Thames and Hudson, 1999.

Krell, Randall Farrell. *Memory, Reminiscence and Writing: On the Verge*. Bloomington, IN: Indiana UP, 1990.

Lanham, Richard. *The Electronic Word*. Chicago and London: U of Chicago P, 1993.

Laurel, Brenda. *Computers as Theatre*. Reading, MA: Addison-Wesley Publishing, 1993.

Lévy, Pierre. *Collective Intelligence*. Trans. Robert Bononno. New York: Plenum Trade, 1997.

Lowe, Donald M. *History of Bourgeois Perception*. Chicago: U of Chicago P, 1982.

Lunenfeld, Peter. *Snap to Grid: A User's Guide to Digital Arts, Media and Cultures*. Cambridge and London: MIT, 2000.

Luesebrink, Marjorie Coverley. Guest for online class discussion of *Califia*." MAIS 656 (Athabasca University), LinguaMOO, 01 Dec 02.

Luesebrink, Marjorie and Jennifer Ley. "Jumping at the Diner." *Riding the Meridian*. <http://www.heelstone.com/meridian/>. (Oct. 2000).

McLaughlin, Tim. "Artificial Memory: Mnemonic Writing in the New Media." July 1996. 04 July 1999. <http://www.knosso.com/tmcl/memory/index.html>.

---. *Notes Toward Absolute Zero*. Watertown, MA: Eastgate Systems, 1995. Software.

McLuhan, Marshall. *The Gutenberg Galaxy*. Toronto: U of Toronto P, 1962.

---. *Understanding Media: The Extensions of Man*. Toronto: Signet, 1964.

McLuhan, Marshall and Eric McLuhan. *Laws of Media: The New Science*. Toronto: U of Toronto P, 1988.

Malloy, Judy. "Hypernarrative in the Age of the Web." <http://arts.endow.gov/Community/Features25/Malloy.html> (1998).

---. *Uncle Roger*. Originally posted on the WELL online conference, 1986. Adapted for the World Wide Web, 1995. <http://www.well.com/user/jmalloy/party.html>.

Malloy, Judy and Cathy Marshall. *Forward Anywhere*. Cambridge, MA: Eastgate Systems, 1996. Software.

Malone, Sheila A. "New Performer: Data as Performer and Performance. *Switch* 5.3. 30 July 02. <http://switch.sjsu.edu/web/v5n3/sheila/index.html>.

Malraux, André. *Museum Without Walls*. Trans. Stuart Gilbert and Francis Price. Garden City: Doubleday, 1967.

Manovich, Lev. "Database as a Symbolic Form." Posted to nettime mailing list (14 Dec 1998). <http://www.nettime.org/nettime.w3archive/>. 12 May 2000.

---. *The Language of New Media*. Cambridge: MIT, 2001.

Marlatt, Daphne. "Translating MAUVE: Reading Writing." *Tessera* 6 (Mar. 1989): 27-30.

Maso, Carole. *Ava*. Normal, IL: Dalkey Press Archive, 1993.

Massey, Doreen B. *Space, Place and Gender*. Cambridge: Polity Press, 1994.

Masten, Jeffrey, Peter Stallybrass and Nancy J. Vickers, Eds. "Introduction: Language Machines." *Language Machines.* New York: Routledge, 1997. 1-16.

Matsuda, Matt K. *The Memory of the Modern.* New York and Oxford: Oxford UP, 1996.

Merleau-Ponty, Maurice. *Phenomenology of Perception.* Trans. Colin Smith. London: Routledge, 1992.

Mez (Mary Anne Breeze). "data][h!][bleeding texts. 2001. 18 Apr 2002. <http://netwurkerz.de/mez/datableed/complete/index.htm>.

Miller, Rand and Robyn Miller. *Myst: Masterpiece Edition*. Cyan/Mattel Interactive, 2000. Software for Windows and Macintosh. <http://www.mystworlds.com>.

Moore, F.C.T. *Bergson: Thinking Backwards.* Cambridge: Cambridge UP, 1993.

Morgan, Robin. *Demon Lover: On the Sexuality of Terrorism.* London: Methuen, 1990.

Morse, Margaret. *Virtualities: Television, Media Art and Cyberculture*. Bloomington: Indiana UP, 1998.

Mortensen, Torill and Jill Walker. 'Blogging Thoughts: personal publication as an online research tool." 18 June 02. Skikt-Konferansene 2002. Conference proceedings. 09 Sept 02. <http://www.intermedia.uio.no/konferanser/skikt-02/docs/Researching_ICTs_in_context-Ch11-Mortensen-Walker.pdf>. 249-279.

Morris, Margaret. *Virtualities: Television, Media Art and Cyberculture*. Bloomington: Indiana UP, 1998.

Moulthrop, Stuart. "Misadventure: Future Fiction and New Networks." *Style* 33.2 (Sept 99) 16 Jan 01 http://raven.ubalt.edu/staff/moulthrop/essays/misadventure/.

---. "Reading from the Map: Metonymy and Metaphor in the Fiction of Forking Paths." *Hypermedia and Literary Studies.* Eds. Paul Delany and George P. Landow. Cambridge: MIT, 1991a. 119-132.

---. "Polymers, Paranoia, and the Rhetoric of Hypertext." *Writing on the Edge* 2.2 (1991b): 150-9.

---. "Pushing Back: Living and Writing in Broken Space." *Modern Fiction Studies*43.3 Fall 1997): 651-674.

---. "Toward a Paradigm for Reading Hypertexts: Making Nothing Happen in Hypermedia Fiction." *Hypertext/Hypermedia Handbook.* Eds. Emily Berk and Joseph Devlin. New York: McGraw-Hill, 1991c. 65-78.

---. "Traveling in the Breakdown Lane: A Principle of Resistance for Hypertext." 18 Jan 02. <http://www.ubalt.edu/ygcla/sam/essays/breakdown.html>.

Moyes, Lianne. "Into the Fray: Literary Studies at the Juncture of Feminist Fiction/Theory." *Canada: Theoretical Discourse.* Eds. Terry Goldie et al. Montreal: Association for Canadian Studies, 1994. 307-325.

Mulvey, Laura. "Visual Pleasure and Narrative Cinema." *Feminism & Film Theory.* Ed. Constance Penley. New York: Routledge, 1988. 57-68.

Munt, Sally. "The Lesbian *Flâneur*." *Mapping Desire: Geographies of Sexualities*. Eds. David Bell and Gill Valentine. London and New York: Routledge, 1995.114-125.

Murray, Janet. *Hamlet on the Holodeck*. Cambridge: MIT, 1997.

Negroponte, Nicholas. *Being Digital*. New York: Alfred A. Knopf, 1995.

Novak, Marcos. "Liquid Architectures in Cyberspace." *Cyberspace: First Steps*. Ed. Michael Benedikt. Cambridge and London: MIT, 1991. 225-254.

Old Boys' Network (OBN). "FAQ: Frequently Asked Questions." <http://www.obn.org/faq.htm>. 13 June 2000.

---. "100 Anti-Theses of Cyberfeminism." 1997. 13 June 2000. <http://www.obn.org/cfundef/100antitheses.html>.

Olkowski, Dorothea. "Flows of Desire and the Body-Becoming." *Becomings: Explorations in Time, Memory and Futures*. Ed. Elizabeth Grosz. Ithaca and London: Cornell UP, 1999. 98-116.

Ong, Walter J. *Orality and Literacy: The Technologizing of the Word*. London and New York: Routledge, 1988.

Nelson, Theodor. *Literary Machines*. Published by the author, 1980-1987.

Page, Barbara. "Women Writers and the Restive Text: Feminism, Experimental Writing and Hypertext." *Journal of Postmodern Culture* 6.2 (January 1996). <http://www2.sva.edu/readings/page.196.html>.

Palumbo, Maria Luisa. *New Wombs: Electronic Bodies and Architectural Disorders*. Trans. Lucinda Byatt. Basel, Switzerland: Birkhäuser, 2000.

Phalen, Peggy. *Unmarked: The Politics of Performance*. London and New York: Routledge, 1993.

Plant, Sadie. *Zeros and Ones*. London : Fourth Estate, 1997.

Probyn, Elspeth. *Outside Belongings*. New York and London: Routledge, 1996.

Rajchman, John. "Diagram and Diagnosis." *Becomings: Explorations in Time, Memory and Futures*. Ed. Elizabeth Grosz. Ithaca and London: Cornell UP, 1999. 42-54.

Raley, Rita. "Reveal Codes: Hypertext and Performance." *Postmodern Culture* 12.1 (2001). Online: http://www.muse.jhu.edu/journals/pmc/v012/12.1raley.html.

Rasula, Jed. "Textual Indigence in the Archive." *Postmodern Culture* 9.3. (May 1999). 06 Sept 1999 <http://www.iath.virginia.edu/pmc/current.issue/9.3rasula.html>.

Reiss, Julie H. *From Margin to Center: The Spaces of Installation Art*. Cambridge: MIT, 1999.

Richards, Catherine. "Fungal Intimacy: The Cyborg in Feminism and Media Art." *Clicking In: Hot Links To A Digital Culture*. Ed. Lynn Hershman Leeson. Seattle: Bay Press, 1996. 258-263.

Ross, Marvin. *The Silent Epidemic: A Comprehensive Guide to Alzheimer's Disease*. Willowdale: Hounslow, 1987.

Ryan, Marie-Laure, Ed. *Cyberspace Textuality: Computer Technology and Literary Theory*. Bloomington: Indiana UP, 1999.

Ryan, Robert E. *The Strong Eye of Shamanism*. Rochester, VT: Inner Traditions, 1999.

Salvaggio, Ruth. *The Sounds of Feminist Theory*. Albany: SUNY P, 1999.

Sanford, Christie Sheffield. *Red Mona*. <http://www.purplefrog.com/~christy/red-mona/>. 1995-99.

---. "The Roots of Nonlinearity: Toward a Theory of Web-Specific Art-Writing." *BeeHive* 3.1 (Feb 2000). 27 Aug 2001. <http://beehive.temporalimage.com/content_apps31/app_a.html>.

Sarason, Richard S. "Cabala." *Microsoft Encarta*. Microsoft Corporation/Funk & Wagnall's, 1994. Reproduced in *Califia*.

Schafer, R. Murray. "The Glazed Soundscape." *Landmarks: A Process Reader*. Eds. Roberta Birks, Tomi Eng and Julie Walchli. Scarborough: Prentice-Hall, 1998. 211-214.

Scott, Gail. *Spaces Like Stairs*. Toronto: Women's Press, 1989.

Seaman, Patricia. "Requiem for Pussy." *New Motor Queen City*. Toronto: Coach House Online Editions. <http://www.chbooks.com/online/new_motor_queen_city/>. 1997-1998.

Shields, Rob. "Hypertext Links: The Ethics of the Index and its Space-Time Effects." *The World Wide Web and Contemporary Cultural Theory*. Andrew Herman and Thomas Swiss, Eds. New York: Routledge, 2000. 145-160.

Shimomisse, Eiichi. *"Tao and the Aperspectival World." Cultural Studies Conference*, University of Oklahoma, 1990. 08 Apr 02 <http://www.csudh.edu/phenom_studies/tao.htm>.

Slatin, John. "Reading Hypertext: Order and Coherence in a New Medium." *Hypermedia and Literary Studies*. Eds. Paul Delany and George P. Landow. Cambridge: MIT, 1991. 153-169.

Slattery, Diana Reed. (with Bill Brubaker and Daniel J. O'Neill). *Glide: An Exploration of Visual Language*. 1997-2001. Some portions online: <http://www.academy.rpi.edu/glide/portal.html>. CD-ROM version and text courtesy of the author.

---. *The Glide Collabyrinth*. 2002. http://www.academy.rpi.edu/glide/apps/collabyrinth.html

Slattery, Diana Reed. "The Glide Project." Courtesy of the author. 2002. 1-35.

---. *The Maze Game*. In manuscript. Courtesy of the author. 1999. Forthcoming: Kingston, NY: Deep Listening Publications, 2003.

---. Discussion and demonstration of *Glide*. Nouspace, Endlos Square. *Computers and Writing* 2002 Online Conference. 25 Apr 02 <http://www.eaze.net:7000>.

Slayton, Joel. "Re=purpose of Information: Art *as* Network." *Switch* 4.2. 30 July 02. <http://switch.sjsu.edu/web/v4n2/joel/index.html>.

Spivak, Gayatri. "Translator's Preface." *Of Grammatology.* Baltimore and London: Johns Hopkins UP, 1976. ix-lxxxvii.

Stein, Gertrude. "Composition as Explanation." *Selections: Writings 1903-1932.* New York: The Library of America. [1926]. 520-529.

---. "What Are Masterpieces and Why Are There So Few of Them." *Selections: Writings 1932-1946.* New York: The Library of America, 1998. 355-363.

Sterling, Bruce. "Analyzing Internet with Gene-Scanning Software." Online posting. 29 Aug 2001. Nettime. 29 Aug 2001 <http://www.nettime.org>.

Stone, Allucquère Rosanne. *The War of Desire and Technology at the Close of the Mechanical Age.* Cambridge and London: MIT, 1995.

Strickland, Stephanie. "Dali Clocks: Time Dimensions of Hypermedia." *EBR 11.* 12 Nov 2001 <http://www.altx.com/ebr/ebr11/11str.htm>.

---. *V: WaveSon.nets/Losing L'una.* New York: Penguin, 2002.

Superguy. "Superguy FAQs." April 2001. <http://www.eyrie.org/superguy/reference/multiverse.html>.

Taubes, Gary and Daniel Kleppner. "The Global Positioning System: The Role of Atomic Clocks." *Beyond Discovery™: The Path from Research to Human Benefit.* 20 Apr 1997. National Academy of Sciences. 25 Oct 1999. <http://www.beyonddiscovery.org/content/view.article.asp?a=458>.

Taylor, Mark and Esa Saarinen. *Imagologies: Media Philosophy.* London and New York: Routledge, 1994.

Tofts, Darren and Murray McKeich. *Memory Trade: A Prehistory of Cyberculture.* North Ryde, Australia: 21C/Interface, 1997.

Tuan, Yi-Fu. *Space and Place: The Perspective of Experience.* Minneapolis: U of Minnesota P, 1977.

Tyson, Donald. "Kirsher's Tree of the Sephiroth." *The Truth About the Kabbalah.* 28 July 02 <http://dontyson.tripod.com/kircher.html>.

Turkle, Sherry. *Life on the Screen.* New York: Simon and Schuster, 1995.

Ullman, Ellen. *Close to the Machine.* San Francisco: City Lights, 1997.

Ulmer, Gregory L. "Grammatology Hypermedia." *Postmodern Culture.* June 1997. <http://www.iath.virginia.edu/pmc/text-only/issue.191/ulmer.191>.

---. *Heuretics: The Logic of Invention.* Baltimore and London: Johns Hopkins UP, 1994.

---. "The Object of Post-Criticism." *The Anti-Aesthetic.* Ed. Hal Foster. New York: The New Press, 1998. 83-110. [1983]

Vallias, Andras. "We Have Not Understood Descartes." *Visible Language* 30.2 (May 1996): 150-157.

VNS Matrix. "Cyberfeminist Manifesto." <http://sysx.org/vns/manifesto.html>. 08 Jan 2002.

Virilio, Paul. *The Aesthetics of Disappearance*. Trans. Philip Beitchman. New York: Semiotext(e), 1991a.

---. *The Information Bomb*. Trans. Chris Turner. London: Verso, 2000.

---. *The Lost Dimension*. Trans. Daniel Moshenberg. New York: Semiotext(e), 1991b.

---. *Open Sky*. Trans. Julie Rose. London: Verso, 1997.

---. "Speed and Information: Cyberspace Alarm!" Trans. Patrice Riemans. Online posting. 27 Aug 1995. *Ctheory*. 20 Mar 2002 *<http://www.ctheory.net/printer.asp?id=72>*.

Walker, John A. and Sarah Chaplin. *Visual Culture: An Introduction*. Manchester and New York: Manchester UP, 1997.

Wellbery, David E. "Foreword." *Discourse Networks 1800/1900*. Trans. Michael Metteer, with Chris Cullens. Stanford: Stanford UP, 1990. vii-xxxiii.

Wendt, Larry. "The Art of Memory: Giordano Bruno." "Narrative as Genealogy: Sound Sense in an Era of Hypertext." 16 June 96. *Switch* 4. 27 July 02 <http://cadre.sjsu.edu/switch/sound/articles/wendt/nghome.htm>. <http://cadre.sjsu.edu/switch/sound/articles/wendt/folder6/ng6212.htm>.

---. "The Art of Memory: Giulio Camillo." "Narrative as Genealogy: Sound Sense in an Era of Hypertext." 16 June 96. *Switch* 4. 27 July 02 <http://cadre.sjsu.edu/switch/sound/articles/wendt/nghome.htm>. <http://cadre.sjsu.edu/switch/sound/articles/wendt/folder6/ng6211.htm>.

Wertheim, Margaret. *The Pearly Gates of Cyberspace*. New York: W.W. Norton, 1999.

Wiener, Norbert. *Cybernetics: Or, Control and Communication in the Animal and Machine*. 2E Cambridge: MIT, 1961. [1948]

Wilding, Faith. "Cyberfems do it on the documenta x, Report 1." <http://www.obn.org/kassel/faith-report1.html>. 23 Sept 1997. 13 July 2000.

---. "Cyberfems do it on the documenta x, Report 3." <http://www.obn.org/kassel/faith_report3.html>. 23 Sept 1997. 13 July 2000.

---. "The Future is Femail." Posted to the nettime mailing list.18 Sept 1998. 18 Sept 1998. <http://www.desk.nl/~nettime/>.

Wilson, Elizabeth and Andreas Ströhl. "On the Philosopher Vilém Flusser." EBR 5 16 Dec 98 <http://www.altx.com/w%28ebr%29/essays/flusser.html>.

Wittig, Monique. *The Straight Mind and Other Essays.* Boston: Beacon, 1992.

Wittig, Rob. "Observations From Here: An E-lit Writer Links to the Past.' *Poets & Writers.* (Jan/Feb 2001). 26 Aug 01. <http;//www.pw.org/mag/wittig.htm>. 1-3.

Wolfson, Nancy. "Rings of Art." *Cigar Aficionado.* 1996. 19 Apr 2002. <http://www.cigaraficianado.com/Cigar/Aficionado/goodlife/fn995.html>.

Wright, Richard. "The Bank of Time." 2001. 13 Apr 2002. <http://www.theBankofTime.com/>.

Wysocki, Anne Frances. "Monitoring Order." 2 March 1998. *Kairos* 3.2. 13 June 2002. <http://www.hu.mtu.edu/~awysocki/mOrder/mOrder0.html>.

xxero. <http://www.xxero.net/>.

Yates, Frances. *The Art of Memory*. London: Pimlico, 1992. [1966]

Zukav, Gary. *The Dancing Wu Li Masters*. New York: Bantam, 1979.

Appendix One

100 Anti-Theses of Cyberfeminism

cyberfeminism is not ...

1. **cyberfeminism is not a fragrance**
2. cyberfeminism is not a fashion statement
3. sajbrfeminizm nije usamljen
4. cyberfeminism is not ideology
5. cyberfeminism nije aseksualan
6. cyberfeminism is not boring
7. cyberfeminism ist kein gruenes haekeldeckchen
8. cyberfeminism ist kein leerer kuehlschrank
9. cyberfeminism ist keine theorie
10. cyberfeminism ist keine praxis
11. cyberfeminism ist keine traditio
12. cyberfeminism is not an institution
13. cyberfeminism is notusing words without any knowledge of numbers
14. cyberfeminism is not complete
15. cyberfeminism is not error 101
16. cyberfeminism ist kein fehler
17. cyberfeminism ist keine kunst
18. cyberfeminism is not an ism
19. cyberfeminism is not anti-male
20. sajbrfeminizm nige nesto sto znam da je
21. cyberfeminism is not a structure
22. cyberfeminismo no es uns frontera
23. cyberfeminism nije poslusan
24. cyberfeminism nije apolitican
25. cyberfeminisme is niet concreet
26. cyberfeminism is not separatism
27. cyberfeminism is not a tradition
28. cyberfeminism is not maternalistic
29. cyberfeminisme id niet iets buitenlands
30. cyberfeminism is not without connectivity
31. cyberfeminismus ist nicht mehr wegzudenken
32. cyberfeminismus ist kein oxymoron
33. cyberfeminism is not on sale
34. cyberfeminism is nor for sale
35. cyberfeminismus ist nicht gut
36. cyberfeminismus ist nicht schlecht
37. cyberfeminismus ist nicht modern
38. cyberfeminismus ist nicht post-modern
39. cyberfeminism is not natural
40. cyberfeminism is not essentialist

41. cyberfeminism is not abject
42. cyberfeminism is not an avatar
43. cyberfeminism is not an alter ego
44. cyberfeminismus ist nicht truegerisch
45. cyberfeminismus ist nicht billig
46. cyberfeminismus ist nicht willig
47. cyberfeminisme n'est pas jaloux
48. cyberfeminism is not exclusive
49. cyberfeminism is not solid
50. cyberfeminism is not genetic
51. cyberfeminismus ist keine entschuldigung
52. cyberfeminism is not prosthetic
53. cyberfeminismo no tiene cojones
54. cyberfeminisme n'est pas triste
55. cyberfeminisme n'est pas une pipe
56. cyberfeminism is not a motherboard
57. cyberfeminism is not a fake
58. cyberfeminism nije ogranicen
59. cyberfeminism nije nekonfliktan
60. cyberfeminism nije make up
61. cyberfeminism nije zatvoren prozor
62. cyberfeminism is not a lack
63. cyberfeminism is not a wound
64. cyberfeminism is not a trauma
65. cyberfeminismo no es una banana
66. cyberfeminism is not a sure shot
67. cyberfeminism is not an easy mark
68. cyberfeminism is not a single woman
69. cyberfeminism is not romantic
70. cyberfeminism is not post-modern
71. cyberfeminism is not a media-hoax
72. cyberfeminism is not neutral
73. cyberfeminism is not lacanian
74. cyberfeminism is not nettime
75. cyberfeminism is not a picnic
76. cyberfeminism is not a coldfish
77. cyberfeminism is not a cyberepilation
78. cyberfeminism is not a horror movie
79. cyberfeminism is not science fiction
80. cyberfeminism is not artificial intelligence
81. cyberfeminism is not an empty space
82. cyberfeminism is not immobile
83. cyberfeminism is not about boring toys for boring boys
84. cyberfeminismus ist keine verlegenheitsloesung
85. cyberfeminism is not a one-way street

86. cyberfeminism is not supporting quantum mechanics
87. cyberfeminism is not caffeine-free
88. cyberfeminism is not a non-smoking area
89. cyberfeminism is not daltonistic
90. cyberfeminism is not nice
91. cyberfeminismo no es callado
92. cyberfeminism is not lady.like
93. cyberfeminismus ist nicht arrogant
94. cyberfeminismus ist keine nudelsauce
95. cyberfeminism is not mythical
96. cyberfeminism is not from outer space
97. cyberfeminismo no es rock 'n roll
98. cyberfeminism is not dogmatic
99. cyberfeminism is not stable
100. cyberfeminism has not only one language

Source: http://www.obn.org/cfundef/100antitheses.html

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1996-1997	Sarah Nettie Christie PhD Scholarship, University of Alberta (declined)
1995-1996	Special University Scholarships (SUS) x 3, University of Western Ontario
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1987	Scholarship to West Word III, University of British Columbia

Professional Memberships

ACCUTE, Association of Canadian College and University Teachers of English
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ELO, Electronic Literature Organization

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13 Nov 02	'Literary Cybercultures' including MOOs, email narratives, blogging, and electronic literature, in Humanities Computing 520: Technical Concepts and Approaches in Humanities Computing, (University of Alberta, Prof. Stéfan Sinclair)
14 Mar 02	'Where Code Becomes Sex: Ellen Ullman's *Close to the Machine*.' English 403: Future of the Body (University of Alberta, Prof. Sherryl Vint)
30 Jan 98	'Feminist Hypertext,' Uses of the Computer in Literary Studies, Proseminar (University of Alberta, Prof. Susan Hockey)

Seminars, Pedagogical & Technological Development

2002	• Certificate, JavaScript (TTC)
	• Information Design: Getting Your Message Across (ATL)
	• Instructional Models: The Foundation in Designing Your Course (ATL)
	• Electronic Presentations: PowerPoint and Beyond (ATL)
2001	• Breathing Life into the Text: Using Performance and Voice to Teach Literature Collaboratively, Workshop with Peter Elbow (UTS; Writing Program)
	• High Stakes and Low Stakes in Assigning and Responding to Student Writing, Workshop with Peter Elbow (UTS; Writing Program)
	• Learning Style Differences (UTS)
	• Inclusion: The Ripple Effect (UTS)
	• Fostering Student's Self-Direction in Learning (TLC)
	• Weaving the Web Into Professional Practice (TLC)
	• WebCT II: Conferencing and Course Materials (ATL)
	• Using WebCT to Support Your Classroom Teaching (TLC)
	• Introduction to PowerPoint (TLC)
	• Certificate, Dreamweaver Advanced (TTC)
2000	• Certificate, Introduction to Dreamweaver (TTC)
	• Instructional Writing for Web Courses (UTS)
	• Technology and Inclusivity (ATL)
	• FrontPage for WebCT (ATL)
	• Instructional Multimedia Using Flash (UTS)
	• Active Learning Strategies for the Web (ATL)
	• Computer-Assisted Instruction: An Introduction (ATL)
	• Preparing a Course Outline (UTS)
	• Developing Your Teaching Dossier (UTS)
	• Choosing an Instructional Model (UTS)
1996-97	• Professional Skills: 4 Modules, Dept of English, U of Alberta
1996	• Introduction to the Teaching of First-Year English, U of Alberta
1995	• Certificate, TA Training Program for Graduate Students, U of Western Ontario

ATL = Academic Technologies for Learning, University of Alberta
TLC = Technologies for Learning Centre, University of Alberta
TTC = Technology Training Centre, University of Alberta
UTS = University Teaching Services, University of Alberta

Graduate Courses

English 583	Differing Texts: Minority Writing in Contemporary Canadian Literature
English 588	Cultural Poetics: Postmodernism and Contemporary American Fiction
English 731B	Jacobean (Women) Writing
English 787A	Poetry and Knowing: Contemporary Canadian Poetry and Thought
English 514	Ghosts in the Attic: Gothic Novels, Unfinished Form, and "Outrageous Stimulation"
English 674	Postcolonial Theory
English 693	American Modernist Poetry: T.S. Eliot to Marianne Moore
English 569	Post/Modernism and Queer Praxis
English 584	Creative Writing (Kristjana Gunnars)
English 606A	Bibliography
Proseminar	Literary Computing and HTML Programming (David Miall)
Proseminar	Uses of the Computer in Literary Studies (Susan Hockey)

Committee Work

2002 to 2004	trAce Editorial Advisory Board, Nottingham Trent University, UK
2002 to 2003	School Committee, trace Online Writing School, Nottingham Trent Univ, UK
2000 to present	Board of Literary Advisers, Electronic Literature Organization, Chicago <http://www.eliterature.org>.
1999 to 2002	Elected graduate student co-representative (two terms), Computer Committee, English Department, University of Alberta
1998 to 2003	Executive Member of the Consortium for Computing in the Humanities (COCH/COSH), Representative to the Humanity and Social Sciences Federation of Canada's (HSSFC's) Women's Issues Network
1995 to 1996	Elected graduate student representative of the Senate Review Board Academic (SRBA), University of Western Ontario

Published Work

i. Print Publications

"Anamnesis and Amnesia: The Cyberfeminist Archive in M.D. Coverley's *Califia." Postmodern Culture.* [Under consideration.]

"A Virtual Chorus: *Assemblage, The Women's New Media Gallery*," *Sojourner: The Women's Forum*, 2003. [Boston; forthcoming]

"Women and Online Culture," a dialogue with Carla Cole, Carolyn Guyer, Lois Losito and Heather Mallin. Amanda Eisen and Michael Joyce, Facilitators. *Through the Lens: Women and Information Technology*. Women and Philanthropy, Vol. 1, (Washington, D.C., 1998): pp 9-12.

"The Function of Metadrama in Sharon Pollock's *Blood Relations*." *The Fitzhenry and Whiteside Handbook for Writers*, Canadian Edition. Toronto: 1996.

ii. Online Publications

"Gliding Bodies: Cyberfeminism, Interactivity and Slattery's *Collabyrinth.*" *artwomen.org.* <http://www.artwomen.org/>. (Maryland, Jan 03)

"Machine Dreams and Webbed Arts: Urban Process in Subtextual Circulation." *Text: Writing Online/Online Writing*. Vol 5, #1, Special Issue #2. (Brisbane, Australia; Apr 01). Online: <http://trace.ntu.ac.uk/traced/guertin/machine/>

Contributing Editor, with Jennifer Ley and Marjorie C. Luesebrink. *Riding the Meridian*, Women and Technology Issue. (New Jersey, Feb 00). Online: <http://www.heelstone.com/meridian/>.
Ranked the #1 Literary Site on the Web by *planetclick.com*
*(Excerpts from this issue reprinted by the print journal *zazil*, San Diego, 2001)

With Marjorie C. Luesebrink. "The Progressive Dinner Party: A showcase of 39 women web.artists and hypertext authors, with commentary by N. Katherine Hayles and Talan Memmott." Illustrated. *Riding the Meridian*, Women and Technology Issue. (New Jersey, Feb 00). Online: <http://www.heelstone.com/meridian/templates/Dinner/predinner.htm>.

"Three-Dimensional Dementia: M.D. Coverley's *Califia* and the Aesthetics of Forgetting." Illustrated. *Riding the Meridian*, Women and Technology Issue. (New Jersey, Feb 00). Online: <http://www.heelstone.com/meridian/guertin/3DD1.htm>
*(Revised and reprint:ed as "Multi-Dimensional Dementia" in print journal *zazil,* San Diego, 01).

Assemblage: The Women's New Media Gallery. Illustrated. Updated monthly. trAce Online Writing School, Nottingham Trent University. (Nottingham, UK, Debuted Dec. 99) Online: <http://trace.ntu.ac.uk/traced/guertin/assemblage.htm>.

"Gesturing Toward the Visual: Virtual Reality, Hypertext and Embodied Feminist Criticism." *Surfaces.* VIII (Montréal, Dec 99): 1-18. Online: <http://www.pum.umontreal.ca/revues/surfaces/vol8/vol8TdM.html>.

"Three-Dimensional Woman: The Visual Discourses of Female Desire in Nicole Brossard's Holographic Hyperfiction." Illustrated. *Electronic Book Review* 7 (Chicago, Summer 98): 25 pp. Online: <http://altx.com:80/ebr/ebr7/ebr7.htm>.

"Queen Bees and the Hum of the Hive: An Overview of Feminist Hypertext's Subversive Honeycombings." Illustrated. *BeeHive* 01:#02 (San Francisco, Summer 98): 52 pp. Online: <http://www.temporalimage.com/beehive/content_apps02/qb.html>
*** Cyber Excellence Award-winning issue, August 1998**

iii. Reviews

Richard Cavell's *McLuhan in Space: A Cultural Geography. Postmodern Culture.* Forthcoming.

Shelley Jackson's *Patchwork Girl, Or A Modern Monster. Other Voices*: 12.1, (Spring): 85- 89.
*(Reprinted: *Women Writers*. (Texas, Aug 99) <http://www.womenwriters.net/>)

"Book of the Month: Darren Tofts and Murray McKeich's *Memory Trade: A Prehistory of Cyberculture.*" *Resource Center for Cyberculture Studies.* (Maryland, May 99). Online: http://otal.umd.edu/~rccs

Adriene Jenik's *Mauve Desert: A CD-ROM Translation. Other Voices* 11.2 (Fall 98): 86-90.

Jannie Edwards's *The Possibilities of Thirst* and Lorie Miseck's *The Blue Not Seen. Other Voices*, 11.1, (Spring 98): 99-102.

iv. Poetry Publications

Skin Songs. With Claire Dinsmore. Illustrated. Cauldron and Net, (Philadelphia, 2003.) [forthcoming.]

Skeleton Sky. Illustrated. San Diego: PaperBrainPress, 2002. Chapbook. [forthcoming.]
Translation of online hypertext published in BeeHive.

"code.poetry::executables". With Jorge Luiz Antonio, Ted Warnell, Millie Niss and Steve Duffy. <http://warnell.com/syntac/exec.htm>.

"Echo's Breaths" and "underwater rooms." *4 Corners Feminist Review*. Vol 3 (Fall 00): 30-35.

Incarnation: Heart of the Maze. With original music by Kathy Kennedy. Illustrated. Feature: Poems for April. *Electronic Poetry Centre* (EPC), SUNY, Buffalo. (April 00): 50 pp. Online: <http://epc.buffalo.edu/features/april/>. *Reprinted *Cauldron & Net* (April 01)

"pull of the dark," "cryogenics" and "Ice Age for an Interspatial Protozoa." *A Room Without Walls*. (March-April 00). Online: <http://warnell.com/room/ali_rea.htm>.

"skeleton sky: a millennium poem." Illustrated. *BeeHive* 02:#05. (Dec 99): 28 pp. Online: <http://www.temporalimage.com/beehive/content_apps25/skeletonsky.html>.

"on Naxos." *4 Corners Feminist Review*. (Edmonton, Fall 99): 32-34.

"present in her absence: an excerpt from caw caw callings." *Tessera*, Vol. 25 (Winter/Spring 98-99): 100-116.

"un geste de la langue." *La Grenouille à tête carrée*, Vol. 5, No. 4, (Summer 95): 3.

"rat in a ribcage" and "monument 3." *ECKS Press*, 1.1, (Winter 95): n.p.

"the turret" and "another morning." *The New Quarterly*, XIV.1, (Spring 94): 83-87.

"the light in shadow" and "borderline." *Contemporary Verse 2*. 14.1, (Summer 91): 50-52.

"late night lunacy." *Room of One's Own*. 12.4 (Feb 89): 86-87.

v. Conferences, Exhibitions, Interviews & Events

Paper (pending): "Particles and Waves: Archiving Modernism in Stephanie Strickland's Vniverse." *Archiving Modernism Conference*. University of Alberta (July 23–26, 2003).

Paper (pending): "Refusing History, Re-Membering Glide." *Science Fiction Research Association's 34th Conference*, University of Guelph (June 26-29, 2003).

Curator, Exhibition (pending): "Unfoldings: An Exhibition of Information Art and Architectures," City of Edmonton Arts District. Co-Sponsored by the University of Alberta and Athabasca Univ (Feb 03).

Paper: "Cyberfeminism and Digital Narrative," Universidad Internacional of Andalucía, Spain (Jan 03).

Exhibition: "Incarnation: Heart of the Maze," the *2002 Aldeburgh Poetry Festival*, Multimedia Poetry Exhibit, <http://www.aldeburghpoetryfestival.org/>, (UK, Nov 02).

Interview: (with Douglas Barbour, by Pran Nath Pandit) on the Canadian literary avant-garde for broadcast on Indian national radio, Indira Gandhi National Open University. (21 June 02).

Paper: "From Complicity to Interactivity: Theories of Feminist Game Play." ACCUTE/ Consortium for Computers in the Humanities (COCH/COSH) *2002 HSSFC Congress* (Toronto, 26-28 May 02).

Panel Organizer and Moderator: "Information Aesthetics I and II": "Practitioners in Theory " and (with Maria Damon) "Intermedialities Online: Codework and Beyond." Consortium for Computers in the Humanities (COCH/COSH) *2002 HSSFC Congress* (Toronto, 26-28 May 02).

Featured Poet:: Three works by Carolyn Guertin at *Future ForWORD*, the multimedia exhibition at the *Seattle Poetry Festival 2002* <http://www.poetryfestival.org> (Seattle, 29 Apr to 5 May 02).

Paper: "Quantum Feminisms and Fractal Subjectivities: A Virtual Pedagogical Model," *Sex-and-Gender: Differences, Education, and Culture Conference*, Faculty of Education (Edmonton, 24 Nov 01).

Poetry Reading: Instructors' Night, Women's Words, Faculty Club, University of Alberta (06 June 01)

Collaborative web.art exhibition: “Stigmata.” *Gimokud - The Melting Soul*, Hoydigiteer.org, WebArtery, and University of the Philippines College of Fine Arts (opened 14 Feb 01).
* Selected Screening at Asian Arts Festival 2001 Symposium (26 Feb 01).

Interview: "Digital Storytelling" (18 Oct 00). CBC Radio, *Ideas*.

Featured Site: Carolyn Guertin's Home Web, *Archive Cultures Conference*, Fundacio Antoni Tapies, Barcelona, Spain. (19 Sept to 22 Oct 00).

Interview: "Stephen King Launches Self-Published Online Serial for Pay." *Artswire* (New York Foundation for the Arts). Vol. 9, No. 31: (01 Aug 00).

Paper: "Anamnesis and Amnesia: The Cyberfeminist Archive in Hypertext Fiction." Consortium for Computers in the Humanities (COCH/COSH), *2000 HSSFC Congress*. (Edmonton, 25 May 00).

Interview: "Books Without Borders." With Stephanie Nolen, *Globe and Mail* (26 April 00): R1, R3.
Featured Artist. *Defib*. Transcript of moo online:
<http://webartery.com/defib/canned/9Carolyn/index.html> (Seattle, 05 March 00).

Paper: "Three-Dimensional Dementia: Hypertext Fiction and the Aesthetics of Forgetting." *Digital Arts and Culture '99 (DAC '99).* (Atlanta, 30 Oct 99).

Panelist: “Gender and Identity in New Media.” *Invençao Symposium*. (Brazil, 25-29 Aug 99). Online: <http://www.artswire.org/jmalloy/identity/panel.html>.
*** Semi-Finalist, Arts and Culture category, 1999 GII Awards**

Paper: "Gesturing Toward the Visual: Virtual Reality, Hypertext and Embodied Feminist Criticism." ACCUTE/Consortium for Computers in the Humanities (COCH/COSH), Keynote Session, *1998 HSSFC Congress*. (Ottawa, 28 May 98).

Paper: "Queer Brides and Heterotopic Space in Gail Scott's Montréal." ACQL, *1998 HSSFC Congress*. (Ottawa, 28 May 98).

Online Presentation: "Contact Points: Feminist Theory Meets Hypertext with Attitude." *Research Revelations*. (Edmonton, 07 Feb 98).

Paper: "French-Thinking Body, English-Speaking Words: The Language of Cultural Translation in Gail Scott's *Main Brides*." ACQL, *1996 Learned Societies Congress*. (St. Catharines, 25 May 96).

Exhibition: "present in her absence," *Artcite Gallery*. (Windsor, Feb-Mar 96): 10 pp.

Reviews of My Work:

“Hosting Diverse Works and Approaches, Part II.” Writenews.com/Artswire. (New York, 22 Jan 02).
http://www.writenews.com/artswire.htm

Adrienne Eisen, “What Clicks.” *American Book Review* 22.1 (Nov/Dec 00):
http://www.litline.org/abr/abrND00.html or http://www.litline.org/abr/PDF/221EISEN.pdf

Stephanie Nolen, “Books Without Borders.” *Globe and Mail*. (26 April 00): R1, R3.

Literary Judge

2001	Judge, Electronic Literary Organization’s Award; first round screening and fiction shortlist

Residency

2003 on	Poet in Virtual Residence, Studio Space at the trAce Online Writing School, Nottingham Trent University, <http:/trace.ntu.ac.uk/traced/guertin/index.cfm>